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Improving the Reporting Practice in Project Delivery of Offshoring Projects

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Preface

When I started to write this part of the thesis, I couldn't stop thinking about the starting point of my studies in Industrial Management in autumn 2014. A lot of things have happened between these two events and, not the least, a considerable professional growth gained from the studies. This journey was an exploration of my company's business as I did not only learn a lot from the case company, but also was able to form a new perspective to better see the activities and business of the case company. My company supported me in my studies in an exemplary manner, great thanks for this all my colleagues who were involved for the contribution.

In the beginning of the studies, the topic of the thesis seemed to be very clear, but during this journey it turned out to be a challenge. The most challenging part of the thesis was my ability to simplify things, to see the forest from the trees, especially when it comes to choosing the right and potential focus for the study. Therefore I would like to thank Dr Thomas Rohweder for helping me to get ahead from this most challenging point when forming my conceptual framework. I also would like to thank PhL Zinaida Grabovskaia, whose steering and encouragement were invaluable during my writing process, and Dr Marjatta Huhta, Head of Program, for her vital comments and keeping up a positive, encouraging and creative atmosphere throughout the academic year.

Last but not least, this thesis would not be completed without extensive support from my family and friends, special thanks to my wife and children for making this possible.

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This thesis investigates reporting practice in the case company and proposes improvements on it. The case company uses offshore for project operations and recently use of offshoring has been increased significantly. Due to growth in offshore operations some reporting practices has not been developed accordingly.

The research method of this thesis was action research due to its cyclical and qualitative nature, which was considered to serve best the needs of this study. The research design includes five steps, where the business problem identification, the current state analysis and the conceptual framework combines an input for building and finalizing the proposal.

As a result of the current state analysis, three main challenges were identified in order to form conceptual framework, and further on, to build the proposal for the case company. The challenges were categorized into three logical questions related to the more general problems of reporting for further examination in the literature. The categorized questions were: a) what to report, b) how and when to report, and c) by what means to report.

The outcome of this thesis is the improvement proposal on reporting practices in the project delivery of the case company. The proposal identifies three problematic areas in reporting practice in the case company and suggests the improvement proposal, including the action plan, on each of them.

The suggested improvements on the current reporting practice includes: First, the new weekly report template for offshore reporting. This report template serves the project team as well as the customer. The report template creates the conditions for more formal and uniform reporting between onsite and offshore and saves time as part of the data can be reused further on when reporting the status to other reporting lines. Second, the improvement suggestions to the project accounting tool in order to ease the use of the tool, to confirm the accuracy of data provided by the tool and to align data from the tool with the current health check report of the case company. Third, to improve the current financial report by adding few additional data fields into the report in order to ease use of the report and save time.

The outcome of this thesis helps the case company to clarify their reporting practices. The case company may benefit from the results of this thesis by more uniform, more accurate and time saving reporting practice.

Keywords	Reporting practices, project management, portfolio management, reporting tools, offshoring, project delivery

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1 Introduction

Emerging markets, especially some Asian countries, offer well educated and highly skilled labor for IT companies around the world. Some companies want to take advantage of the available knowledge in these countries and have established co-operation with companies in Asia. However, long term advantages can be ruined by negligent planning and implementation of offshoring projects. Success in offshoring calls not only for good planning of the target state, but also for awareness and careful delivery in daily processes, so that the impact of offshore collaboration will be positive, beneficial and leads to profitable operations for the company. Such daily matters, however, involve numerous aspects, visible across many processes in project management of offshoring projects.

1.1 Case Company Background

The case company is a medium size company offering IT-services to the financial sector. It employs around 200 people in Finland and has offshore locations in Poland and India. The case company is part of a bigger international IT service provider which will be treated anonymously in this study due to confidentiality reasons.

The case company has two main business lines which are project delivery and service maintenance businesses. Service delivery business line includes Project Delivery business being responsible for IT-solutions sales and delivery to a customer. Quite often the Project Delivery process is extended with service maintenance once a project is completed and delivered. If so, then service maintenance business takes over from the delivery business and starts to maintain service according to the ITIL. The service maintenance business line covers IT-service maintenance and minor development of systems. Thus, two main processes of the project delivery business are *Work Order* and *Project Delivery* processes. These processes are sequential so that the Work Order process, which is dedicated to preparing quotation for the customer, is followed by the Project Delivery process in case the customer has accepted the quotation.

The case company started to use offshore in 2014. During the year 2014, the amount of offshore usage especially in Project Delivery and consultation business, has in-

creased, and now offshore has gained a significant role in the company business and strategy.

1.2 Key Concepts

In general terms, *offshoring* means the relocation of a business process from one country to another country. Business processes typically relocated in offshoring, for example, in the IT industry, are software development or testing functions. According to experts, the most important reasons for moving business out of the U.S. are lower wage rates in the destination country, proximity to the customers and better access to skilled labor (Porter and Rivkin 2012).

Project Delivery refers to delivering of a business outcome and according to Ditmore (2011), it is one of the critical services in information technology. *Project delivery* typically consists of several practical areas that include project initiation, project communication and reporting, project management, release management, and program management (Ditmore 2011). In IT-industry, project delivery is often followed by IT service maintenance handover, when the completed end results of the project are transferred to the either organization or IT service provider. Then, the IT service maintenance organization maintains the solution developed in the project.

Project monitoring is a sequence of actions such as observation and supervision which those in the management team should conduct in order to know the condition of their projects. Without *reporting* it is not easy to monitor a project; moreover, without a sufficient level of monitoring the project, the risk level may increase. What makes reporting significant and challenging is the fact that each level in the management hierarchy needs information in a form and at a frequency that allows to exercise control and steer the project effectively. It is also critical that such reports would show the extent to which the project is likely to meet its completion expectations, giving any necessary data and forecast set out in the project plan. (Roberts 2007: 170)

1.3 Business Challenge

This study focuses on improving efficiency of offshoring projects of the case company, especially inefficiencies of the current operations in Project delivery of offshoring projects, related to ineffective reporting. When the company started to use offshoring, one significant element of the offshoring projects was to have accurate and up-to-date information of each project progress. Currently, the case company have different levels for reporting and all levels have different needs from reports. Although the company has well-established reporting practices already before starting to offshore, some of these practices and reporting tools faced new requirements coming from the growing offshore business. That is to say that the use of offshoring calls for improvement of the existing reporting practices for effective use in offshore projects.

One of such aspects in reporting is the steps and practices to accurately follow the project progress. As the strategy of the case company is now based on the use of offshore workforce, it is clearly required to be aware of the actual status and clear forecast of the upcoming phases of each project. In order to monitor the project progress effectively, the accurate and timely flow of information is essential. If the practices and tools are not improved, the project monitoring may give a false picture of the project status. This in turn has impact on business and, in the worst case scenario, bad quality of reporting might jeopardize the business of the company or limit its financial success.

In order to deliver financially successful projects in the future, the company wants to investigate the current status and find weak points in its project management in order to streamline the current processes. The case company sees this improvement as a factor which enables the company's financial success in the future.

1.4 Objective and Scope

The objective of the study is to explore the current Work Delivery and especially Project Delivery processes and some of their associated practices, and point to the most critical challenges in both processes. Based on the identified development areas, the thesis then concentrates on one direction which can realistically be improved to a positive outcome, so that the case company can immediately benefit from the improved process or practice in its offshore projects. Therefore, this logic points to another, more

specified objective of the thesis, formulated as a result of the more focused approach, following the initial investigation of the current process challenges.

The more specified objective of this thesis is unidentified as improving the current reporting practices in the Project Delivery process of offshoring projects. This objective was identified as a result of the current state analysis on both processes, the Work Delivery and the Project Delivery process, which involved extensive interviewing the project personnel who are dealing with offshoring. The findings from the current state analysis pointed to the reporting practices as the issues which call for immediate actions and, thus, became the specified objective of this study.

The outcome of this study is the proposal for improving three current reporting practices: (a) offshore project progress reporting, (b) portfolio management reporting tool, and (c) the financial forecast report. They form the core of the current reporting practices in the Project Delivery process. Thus, in the Proposal building part, the scope of the study was limited to improving reporting, since it has proven to make an essential and challenging part of the Project Delivery business.

This study is divided into 7 sections. Section 2 describes the method and material used in this study, including the research approach, data collection and analysis methods. Section 3 describes the findings of the current state analysis. In this section, the current offshore projects of the case company are overviewed and the current processes and challenges analyzed. Section 4 discusses existing knowledge on offshore project management and knowledge management, specially focusing on reporting practices. Section 5 presents the proposal for the case company current processes. In Section 6, the proposal is validated and the final proposal presented. Section 7 discusses and evaluates the results of the study.

2 Method and Material

This section discusses the research approach, methods and materials used in this study. The section also presents the research design used in this study and also discusses data collection and analysis methods followed by validity and reliability plan.

2.1 Research Approach

This study uses action research as it research approach. Action research is orientation of qualitative research methods. Action research pursues to develop the company, organization or other community under an investigation through their practices. Action research is a cyclical process that includes three steps which are, according to Lewin, planning, action and results. (Lewin 1958). This process is described in Figure 1 below.

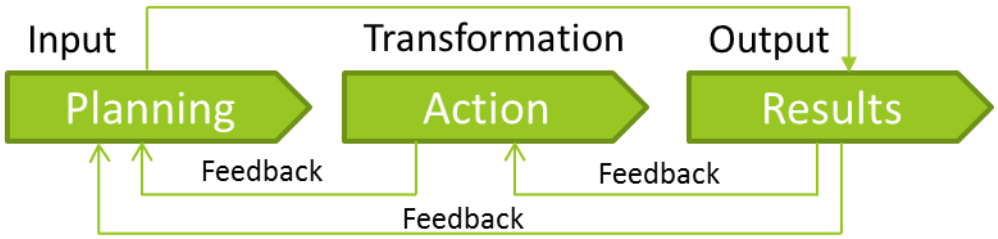


Figure 1. Action research process (Lewin 1958).

As seen from Figure 1, the first step, planning, includes diagnosing of the problem when unidentified problems becomes cognizant. The planning step includes also data gathering and action planning and in addition to this it gets input from both action and results steps for iterating of the preliminary diagnose of problems. The next step of action research is action, which continues developing action planning from the previous step and strives to implement the planned actions in the organization. As an output of the process results step gathers data from the actions implemented and based on that evaluates implemented actions. This step can indicate any necessary adjustment emerged in the evaluation back to either one of the previous steps via feedback (Coghlan & Brannick 2006). Cyclical nature of action research allows to running the process through multiple times, and thereby improves quality of desired end result.

2.2 Research Design

In this study, research design is divided into six main stages which are the business problem identification, the current state analysis, the theory and conceptual framework, the preliminary proposal, the preliminary proposal test and validation and the final proposal. Figure 2 illustrates these main stages and data collection points.

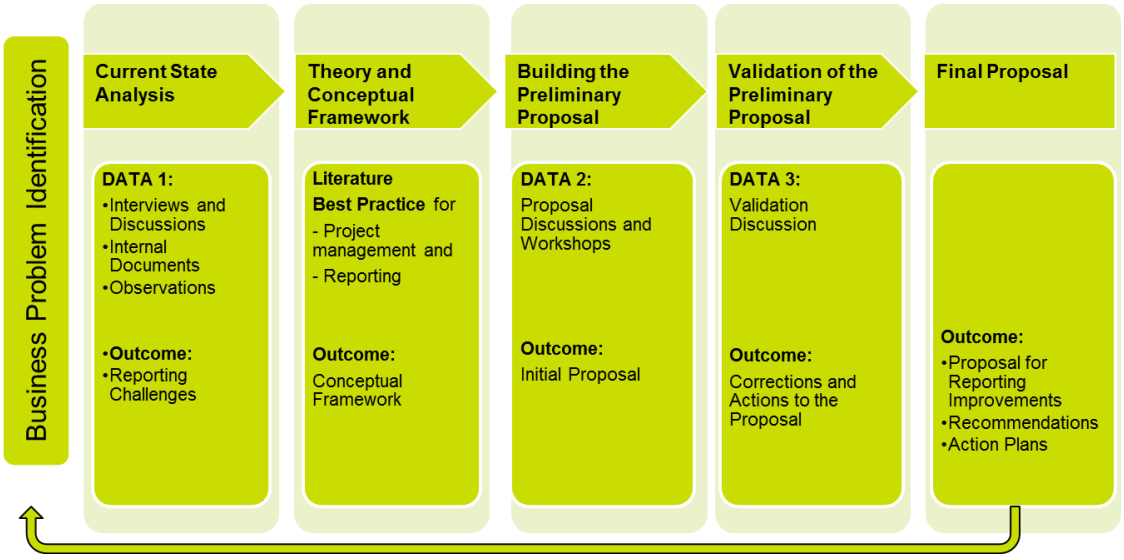


Figure 2. The research design in this study.

Figure 2 shows the six stages of the research design in this study. The research design starts with the business problem identification. The next step is divided into two parts, the current state analysis, and theory search and building the conceptual framework. The current state analysis gets input from Data 1 collection, which is described in more detailed level in Section 2.3.

Theory and conceptual framework are discussed based on the current state results and findings from the existing knowledge and theory. Both of these steps are prerequisites for building the preliminary proposal.

The preliminary proposal will be created based on the Data 1 and Data 2, and it is followed by evaluation of it with the interviewed people from the case company. The preliminary proposal will be evaluated together with the management of the case company and part of it will be tested practically in a real project. As a result of this evaluation and testing, the preliminary proposal will be further developed into the final proposal describing how to improve efficiency of project delivery business. The final proposal in-

cludes recommendations and action plans on how to proceed with identified challenges.

2.3 Data Collection and Analysis

Data collection and analysis in this study is done using qualitative data and analysis methods, such as documentation analysis, observations and interviews. This makes difference with quantitative manner, which, in turn, focuses on numerical data. Data for this study is collected from three main sources which are presented in Table 1 below.

Table 1. Data sources in this study.

Interviews and discussions	Internal documents	Observations
• Uniform interviews with people involved in project delivery business • Meetings • Informal discussions	• Process descriptions • Project documentation • Reports	• Experience of personnel used for identifying and solving the problem in this study

Table 1 shows that the primary sources of data in this study included: (a) the interviews and discussions, (b) internal documents, and (c) participant observations by the researcher. The interviews were conducted with the people who are involved in offshore functions in the case company. More detailed information about the roles of the interviewed personnel, topics and interview technique will be described later in this section. Additionally, part of the research data was collected from internal documentations such as process descriptions, project documentation and reports, and was also drawn from the participant observations by the researcher who act as a project manager in the case company offshoring projects. A more details description of the data source is given below.

Interviews and discussions

Opportunities to collect data consisted of interviews and discussions in different meetings, for example, the project team meetings, business unit meetings and other regular meetings; as well as informal discussions with people who are involved in offshore functions in the case company. The interviewed people represent the Project Delivery business in the case company and all of them have experience in offshore from at least one ongoing project. Summary of details related to interviews, meeting and discus-

sions, information about participants, projects, interview dates and forms of documentation of the interviews, meetings and discussions is presented in Table 2 below.

Table 2. Data 1. Details of the Interviews and discussions.

Person	Role	Project	Date	Documented as
1.	Technical lead	A	17.12.2014	Recording and field notes
2.	Project Manager / Team Leader	A	17.12.2014	Recording and field notes
3.	Team Leader	B	18.12.2014	Recording and field notes
4.	Director	A,B,C,D,E,F	18.12.2014	Recording and field notes
5.	Software Developer	A	18.12.2014	Recording and field notes
6.	Software Developer	C	13.1.2015	Recording and field notes
7.	Project Manager	D	15.1.2015	Recording and field notes
8.	Software Developer / Technical Lead	A	22.1.2015	Recording and field notes
9.	Technical Lead	A	27.1.2015	Recording and field notes
10.	Software Developer	A, F	3.2.2015	Recording and field notes
11.	Release Train Engineer / Project Manager	E	4.2.2015	Recording and field notes
12.	Test Manager	D, G	4.2.2015	Recording and field notes

Table 2 shows that totally 12 people were interviewed from 7 different projects. Roles of the interviewed people presented typical roles in a project delivery business in the case company. The interviews, meetings and discussions were conducted face-to-face and the participants were prepared to the event beforehand by presenting the topics as described in Table 3 below.

Table 3. Data 1. Topics for the interviews.

Topic
Tools
Knowledge Transfer
Cultural Differences

English Language Skills
Practices
Reporting
Free Topic(s)

Table 3 shows that level of the topics was high enough to include different viewpoints from the interviewees and discussion participants. Depending on the background of an interviewee, he or she had an opportunity to discuss other topics as well, and all the interviewees were encouraged to discuss the problems they have noticed in the off-shore projects.

At the end of each interview, the topics were revised and viewpoint of an interviewee was verified. Although the interviewees discussed both processes, the Work Order and the Project Delivery, most made emphasis on the Project Delivery business. However, project managers and director were exception to this as they have vast experience from both processes. In addition to the field notes, in each interview the voice recordings were collected and field notes taken.

Internal documents

A number of internal documents were analyzed for the current state analysis. List of the analyzed internal documents are overviewed in the Table 4.

Table 4. Data 1. Analyzed internal documents of the case company.

	Name of the document	Description
A	WO_Process.pdf	Work order process diagram and description
B	Project_Delivery_Process.xls	Description and diagram of the both delivery methods used in the case company
C	Project X Monthly Status Report.ppt	Project X weekly report
D	Project X Weekly Status Report.ppt	Project X monthly report
E	Project X Internal Steering Group Report.ppt	Project X internal steering group report
F	Project X Management Group Meeting Report.ppt	Project X management group report

Table 4 shows that most of the document sources include different reports. The letter X in report file names refers to a name of a project and because the names of the projects are to be kept secret, the X refers to any project investigated in this study. The reports from different projects provides with practical information of the challenges in the particular project and cross-section of the project delivery business. Such challenges give perspective for discussions with the project personnel.

Data 2

Data 2 was collected from the meetings and workshops kept with both the interviewed and other people from project delivery organization in the case company. Data 2 was collected when building of the preliminary proposal was in progress. Thus, the meaning of Data 2 collection was to receive feedback on the unfinished proposal and to ensure that the proposal is developing in the right direction.

Data 3

Data 3 was collected when the preliminary proposal was presented to the management of the case company. Purpose of Data 3 collection was to receive feedback and comments from the management and to do necessary corrections on the preliminary proposal in order to finalize it into the final proposal. Additionally purpose of Data 3 collection was to ensure the fit of the proposal to the case company's reporting practice.

Observations

This covers all observations made in different project context. Such observations appeared for example in the events that are not intended to discover problems particularly in the area of this study but generally in the project delivery context. Typical events were for example training sessions or project specific workshops. Hence the observations are formed from pieces of information taken from different contexts under the project delivery business in the case company.

As for data analysis, the primary method of data analysis for this thesis was content analysis. All findings from the voice recordings, internal document and observations (Data 1-3) were analyzed, coded, grouped and recorded into the Excel spreadsheet. All findings in the Excel were categorized by ascribing them meaning grouped under various problem areas, and finally into bigger thesis entities such as belonging to the process or development area, problem description and proposal suggestions.

2.4 Validity and Reliability Plan

Meeting validity and reliability requirements are necessary for any qualitative research. *Validity* determines whether the research truly measures what it was intended to measure or how truthful the research results are (Golafshani 2003: 599). Validity in this study means taking into account the correctness and credibility of knowledge gained in this research in descriptions, conclusions, explanations and interpretations and also avoiding the researcher bias.

Validity of this study will be increased by taken into account the following actions. First, the data collection process will be described on a detailed level. Second, the collected data from interviews will be analyzed and validated together with interviewees. Third, data will be reported in detail with use of direct quotes. Fourth, interviewed people and management team of the case company will be involved in developing and evaluation of the proposal. Fifth, theoretical congruence is part of the study as theory and conceptual framework brings existing knowledge in realm of the study.

According to scholars of qualitative research methods, *reliability* is described as an assessment of whether the same findings would be obtained if the research were repeated, or if someone else conducted it. Reliability of research can be strengthen or improved by. a) using different data sources, b) using different data collection tools, c) applying established theory from one area to another, d) collecting data at different time points, or e) using different researchers at different points of research (Quinton and Smallbone 2006: 129-130).

Reliability of this study will be increased by paying attention to the following criteria. First, the data collected in study will include at least three sources as described in Section 2.3. Second, to enable verisimilitude, the outcomes of the study will be discussed widely with colleagues in order to challenge the solution. Third, the data will be documented and further analyzed with the interviewed people, thus enabling transparency into data and end results from the analysis. Fourth, the researcher bias will be minimized by pursuing the interviewees to discuss extensively, interpret the data results with the interviewed people, discussing the results and the proposal with many stakeholders in the case company and finally considering the rival proposals for the improvement solutions.

The preliminary proposal of this study will be validated with the key stakeholders in the Project delivery process, including the team and the management of the Project Delivery business in the case company. Part of the validation will be to question the proposed improvements and suggest alternative solutions for the challenges in the existing practices. Validity of the outcome of the study is hereby planned to be discussed extensively in the case company.

3 Current State Analysis

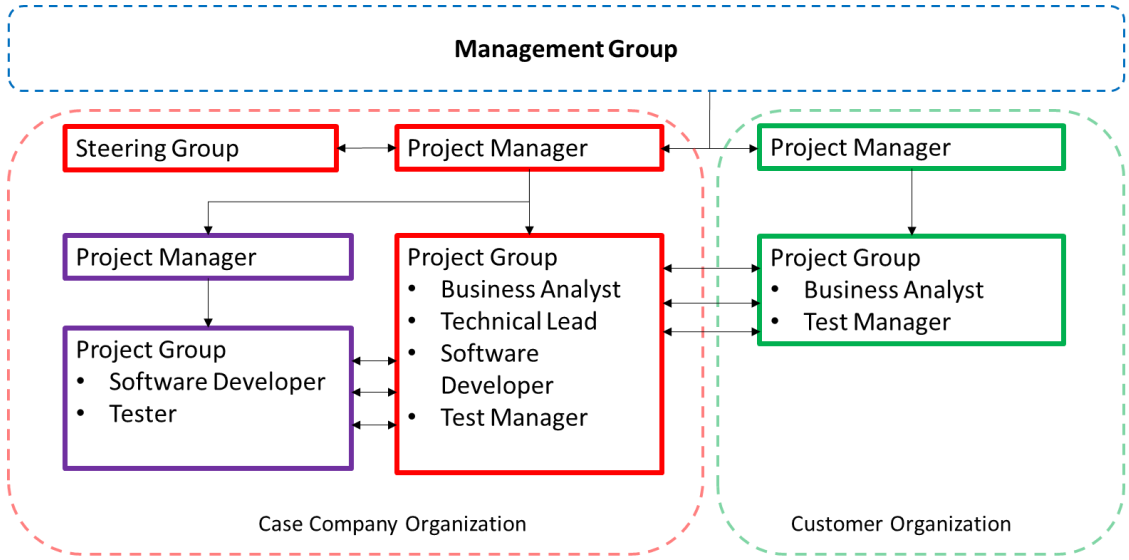
This section discusses the results of the current state analysis based on the findings from interviews and other source material. Section starts by overviewing the project delivery business in the case company. This is followed by description of two main processes and identifying the current problems in the processes. Finally, the section summarizes the findings from the current state analysis.

3.1 Overview of the Offshore Projects in the Case Company

The case company operates in software industry and the company's activities consist of development and maintain of the information systems. The development, for the most part, includes further development of the existing information system of the customer. A project, and the project delivery model, is the framework of the case company for producing and delivering agreed end results to the customer. Typical project in the case company is the further development of the existing information system of the customer, based on the customer's business needs and obligations on the authorities.

In the case company, one essential part of the project delivery business is the use of offshore services. In each project, the case company organizes an offshore team, according to the agreement with the customer. Even though the offshore team has its own project manager in the offshore location, who takes responsibility of steering the project group, the offshore team works closely with the onsite team.

The organization structure of a typical project includes two main parties; the customer and the case company, with both organizations having their own project managers who are responsible for running the project in their organizations. An essential part of the project organization is *a management group*, which has authority to make decisions such as accept changes to the project plan. The management group consist of the people from both organizations such as project managers and stakeholders who have typically roles of a business unit director, sales representative, development manager and product manager. Figure 3 describes the organizational structure of a typical project.



Legend: Offshore Organization (Case Company) Onsite Organization (Case Company) Customer Organization

Figure 3. Project organization structure.

As seen from Figure 3, in terms of the hierarchy, a direct subordinate of the management group is *the ICT-steering group*. This group consists of a smaller number of people than the management group, including only project managers from both organizations, development manager from the customer side and business unit director from the case company. This group meets at least at the same rhythm with management group and it is practically scheduled always shortly before the management group. The idea to meet before the management group is to prepare the issues to be discussed and report on their status at the management group meeting.

Project manager of the case company is in the center of all the action in the project. He or she is responsible for running a project in the case company. This includes steering the onsite project group and also the offshore project group through their project manager. In other words, the offshore project manager is obliged to report to the onsite project manager. The onsite project manager reports to steering group, ICT-steering group and management group as agreed upon project plan.

Finally, in *the project groups*, members in each project group are selected based on the knowledge needed in the project. The most frequently needed roles are described in Figure 4 (below). Project group members are typically involved in close interaction to other group members during the project and this is emphasized between onsite and offshore team members.

An organized and systematic structure of the project organization helps to distinguish the different roles and responsibilities of each player in the project delivery. It is noteworthy that the model described above reflects the basic project situation where the project participants are limited to two main factors; the customer and the case company. However, it is possible that a project consists of more than two main factors, meaning, for example, that other suppliers are involved in a project. Such a situation requires extension of the project structure described above and usually it is designed and taken into account in the beginning of each project.

3.2 Mapping of the Current Processes

This study explores two main processes in the project delivery business of the case company. These two processes are important to the case company because the first of those processes creates pre-requisites and paves the ground for the future project, and the second one represents the realization stage of this project, as well as brings a possibility to negotiate with the customer on additional business opportunities during the process. Both of these processes are described on a high level in Figure 4 below.

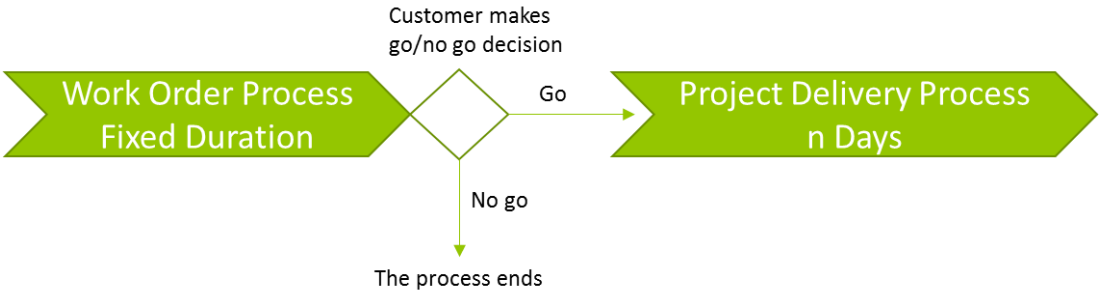


Figure 4. High level description of the main processes.

As seen in Figure 4, the key processes the project delivery business unit of the case company are a) the *Work Order* process, which has set fixed duration, and b) the *Project Delivery* process, the duration which is specified on a case-by-case basis. The Work Order process, illustrated on a high level in Figure 4 above, takes place once the customer indicates the request for proposal. The Project Delivery process will start in the case when the customer has accepted the proposal which makes the end result of the Work Order process. Next, two sub-sections describes the current state of the two processes in more detail.

3.2.1 Work Order Process

The current Work Order (WO) process involves the activities to be taken day by day from the customer indication and request for quotation until the final version of the proposal. The process lasts fixed duration and during that period of time the final proposal for the customer should be finalized and delivered to the customer. Figure 5 describes the main steps of the process on a high level and Table 5 below describes all the steps in more detail.

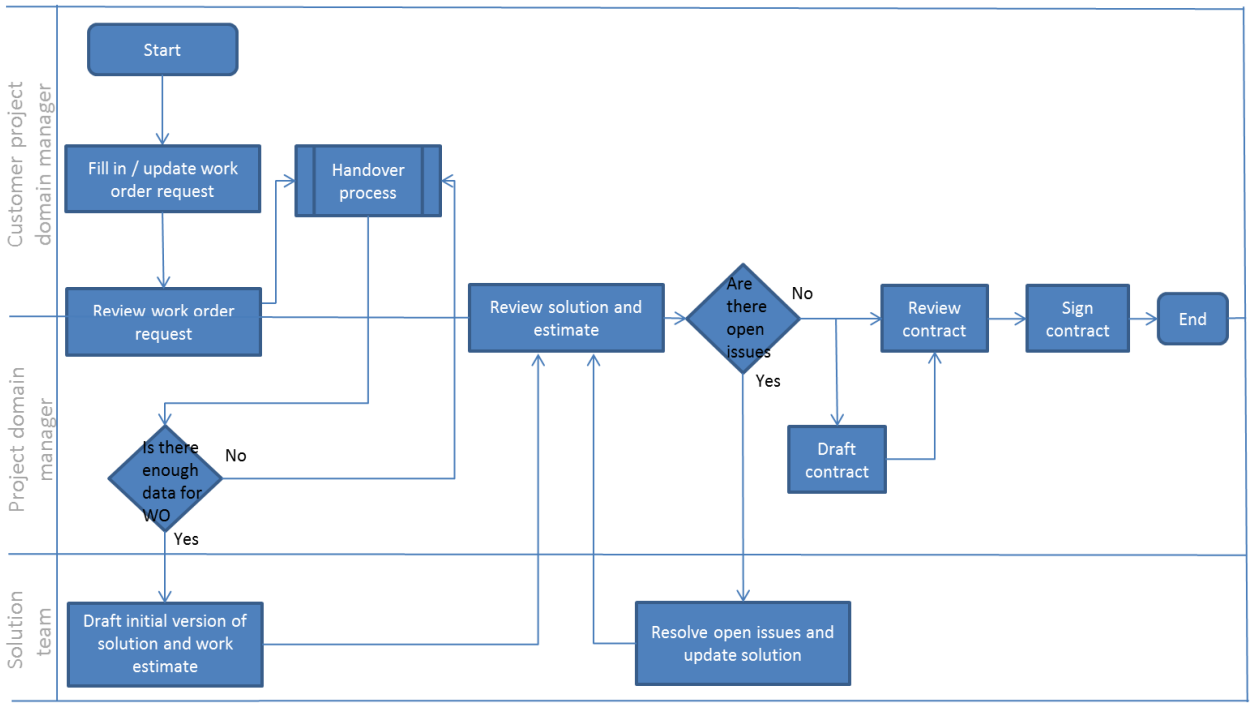


Figure 5. The work order process.

As seen from Figure 5, there are three main roles involved in the Work Order process, which are *the project domain managers* from both the customer and the case company sides, and *the solution team* of the case company. *The project domain managers* will involve other parties during the process if needed, but the *project domain manager* of the case company gathers the required *solution team* that is responsible for creating the actual solution and work estimates based on input of the customer. All steps of WO-process are described in more detail in Table 5 below.

Table 5. Description of WO-process steps.

Process step	Description

1. Start	The process starting point.
2. Fill in / update work order request	The customer initiates the WO-process by filling in a work order request.
3. Review work order request	Key parameters of the work order request and other initial documentation will be reviewed.
4. Handover process	Handover process can be completed once all the initial documents are reviewed and they include enough data for solution and work estimation. Calculation of the duration of the process starts once the handover process is completed successfully.
5. Is there enough data for WO	Possibility to iterate initial documentation in the case they are not descriptive enough, so handover process cannot be completed as long as there is not enough data.
6. Draft initial version of solution and work estimate	This step includes creation of solution and work estimation based on initial documentation reviewed in earlier step.
7. Review solution and estimate	Common review of the solution and estimation.
8. Are there open issues	In case some part of the solution and work estimation needs clarification, or there are other open issues, they will be solved. If there's no any open issues, process progress to the next step.
9. Resolve open issues and update solution	In this step open issues from review of solution and estimate step will be solved.
10. Draft contract	This step includes creation of draft contract.
11. Review contract	The contract will be reviewed.
12. Sign contract	The contract will be signed in this step.
13. End	The process ends here.

Table 5 shows that the WO-process is initiated by filling in a request that describes the key parameters needed for the work order creation. In case there is insufficient information, for example, some important deliverables from the customer have not been completed, an action plan will be created for filling in the gaps. This is part of *the handover sub-process*. Once there is enough data available for creation of the work order, the initial version of the solution and the work estimation can be started by *the solution team* of the case company. As the end result of this phase, a draft project plan including its preliminary schedule, resource allocation, scope and other relevant project related information including the draft work order will be provided for the customer's review by the case company. The customer review can result either in iteration of the draft solution and estimates, in case there are any open issues; or progress the process to the next step, which is *the review of the contract*. Once the contract is successfully reviewed the process can proceed to *the sign of the contract* and *the end of the process*.

It is noteworthy that the progress of the process described above describes the successful end result of the WO-process. It does not mean that the end result is practically always positive for the case company and the process progresses in a straight line. In practice, the WO-process is typically hectic and fast-paced and thus requires continuous attention and contribution from all stakeholders. In this kind of environment, the process efficiency and effectiveness are highly needed in order to reach a satisfactory outcome for all parties.

3.2.2 Project Delivery Process

The purpose of the Project Delivery process is to deliver the agreed results, which may, for example, mean delivery of a service, product or some other end result, to the customer according to the project plan. Since project in its nature is temporary (Manning 2008), so the project team, other groups and stakeholders are assigned to a project to accomplish particular tasks under time constraints.

Typical functions in IT-projects are requirements analysis, technical design and implementation, unit testing, integration and system testing and deployment. The prerequisite for starting a new project and Project Delivery process is the customer's acceptance of the work order. Figure 6 below shows the Project Delivery process followed in the case company.

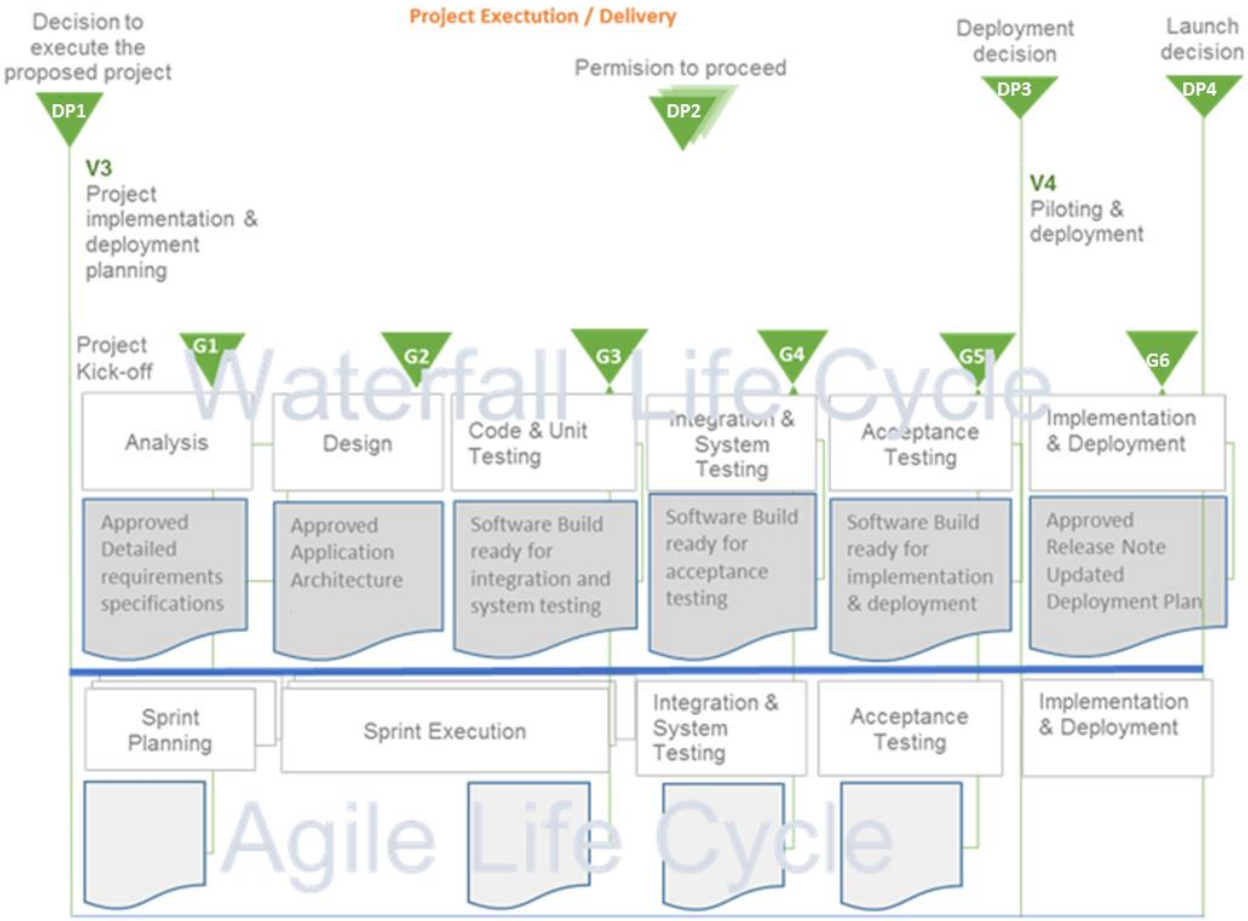


Figure 6. Project delivery process in the case company.

As seen from Figure 6 above, the case company utilizes two different methodologies, namely the *waterfall* and *agile* type of methodologies, which can also be combined for executing a project. Regardless of which methodology is selected, both types of projects has same decision points (DP) and gate reviews (G). The prerequisite for starting a new project and Project Delivery process is the customer's acceptance of the Work Order.

Since any project is temporary by its nature (Manning 2008), so the project team, other groups and stakeholders are assigned to a project to accomplish particular tasks under time constraints. Typical functions in IT-projects are requirements analysis, technical design and implementation, unit testing, integration and system testing and deployment. In Figure 6, there are 4 decision points and 6 gates review in the process. The key stages include a) *analysis,* b) *design,* c) *code & unit testing,* d) *integration & system testing,* e) *acceptance testing* and f) *implementation & deployment* stages. The steps of the both types of the projects are described in more detail level in Table 6 below.

Table 6. Description of the project delivery process steps.

Project type	Process step: **Decision points**	Description
Both Project Types	DP1	Customer has accepted Work Order and made the decision to execute the proposed project. The project will be started usually by mutual Project Kick-Off meeting.
	DP2	Optional decision point; for example in case when the project is started but the scope requires clarification at some point of the project, it can be mutually agreed that the scope will be reviewed at P2+ and if necessary, align the costs and schedule accordingly.
	DP3	Decision point for technical deployment
	DP4	Decision point for business launch, usually requires customer involvement and the decision point reflects mostly action taken in customer organization
	Gates (G1 – G6)	Gates are part of quality assurance of projects and intention of each gate is to confirm that a project has delivered all required deliverables in a particular moment in the process.
Waterfall lifecycle	Analysis	The functional specification based on business requirements will be produced within Analysis phase.
	Design	Design phase means a technical design based on functional specifications. During this phase architecture of the system and the application structure will be designed. This phase has close tie with the next phase (Code and unit testing) and sometimes they both are practically in the same phase.
	Code and unit testing	This phase includes practical coding of the system, based on the knowledge gained from prior phases, and unit testing of the end results.
	Integration and system testing	Once the software is developed and unit tested, professional testers will test it in two separate environments; integration test environment and system test environment.
	Acceptance testing	Once the software has passed the previous testing successfully, it can be delivered for the acceptance testing done by the customer.
	Implementation and deployment	As a result of successful acceptance testing by the customer, the software can be transferred to production environment. This calls for preparation and planning, and the final deliverable from this phase is functional software in the production environment.
Agile Lifecycle	Sprint planning	One sprint lasts typically several weeks, for example 4 weeks. Content, what will be achieved to be done in a sprint will be planned in sprint planning phase.
	Sprint execution	During sprint execution phase tasks planned in sprint planning phase will be executed.
	Integration and system testing	Same as previously described with waterfall lifecycle step.
	Acceptance test-	Same as previously described with waterfall lifecycle step.

	ing	
	Implementation and deployment	Same as previously described with waterfall lifecycle step.

Table 6 shows that phases in the waterfall lifecycle are described to run sequentially; however, in practice two or more phases may be running in parallel. For example, in the case company *the analysis phase* can be partly unfinished when *technical design* and *test planning* are already in progress.

In Agile Lifecycle, as described in Table 6 above, the steps are repeated several times during a project, and one cycle of steps is called a sprint. The purpose of this approach is to develop the desired end result incrementally, which means that the part of the developed entity is possible to demonstrate to the customer at the end of each completed sprint. Demonstrating an unfinished product during the project increases transparency and enable possibility to include changes into the project scope rapidly.

Both project types includes Decision Points, which are required to complete in order to continue the process. Quality Gates are also involved in both project types and meaning of Quality Gates is to confirm that a project has delivered all required deliverables in a particular moment in the process.

As revealed by the results of the current state analysis, both processes the Work Order and the Project Delivery processes, have their challenges. They are discussed in more detail below.

3.3 Challenges in the Current Work Order and Project Delivery Processes

The current state of the Work Order and Project Delivery processes contain some challenges and examination of these challenges done by interviewing participants from both onsite and offshore, revealed the following results. The challenges in the both processes were summarized into 50 identified issues, categorized into 8 different areas. These areas are related either to the Work Order or the Project Delivery process, or in some cases both of them. The findings were restricted to only the first priority findings indicated by the interviewees as their key areas of concern. The overview of the distribution of the results is presented in Table 7 below.

Table 7. Distribution of findings from interviews.

Development area	Work order Process	Project delivery process	Both processes	*Total*	*Priority 1 level*
Practices	3	8	3	*14*	*5*
Knowledge Transfer	1	8	1	*10*	*1*
Proposal Planning	7	-	-	*7*	*4*
Tools	-	5	1	*6*	*3*
Culture	-	3	2	*5*	*1*
Language	-	2	1	*3*	*1*
Team Building	-	1	2	*3*	*2*
Project Planning	-	2	-	*2*	*1*
Total	*11*	*29*	*10*	***50***	**-**

As Table 7 shows, most of the findings are related to the Project Delivery process (totally 29 findings), or the practices development area (14 findings). However, it must be noticed that the number of findings per area or process does not reveal the importance of observations. Therefore, these findings were also evaluated and prioritized with the interviewed people in Data 1 collection phase. As a result from the evaluation and prioritization, the most significant findings were marked as the high priority findings and categorized into groups for further analysis (marked in the Table 7 above on the scale from 3, the lowest priority, to 1, the highest priority).

Based on the evaluation and prioritizing done together with the interviewed people, the most significant findings in the Work Order process are related to *Proposal planning* area. Other and only area that received also prioritizations was *practices* area. In the Project Delivery process, *the Practices* and *Tools* areas received the highest prioritizations, whereas the other areas received much less attention. The key findings are discussed in more detail in the next sections.

3.3.1 Key Problems of the Work Order Process

The Work Order process was summarized into six Priority level 1 findings, with most of the findings related either to *the proposal planning* or *practices* areas. These recognized problems related to the Work Order process are presented in Table 8 below.

Table 8. Most significant observations in the work order process.

Problem	Area	Description of the problem	Business impact
1.	Practices: *Time Constraints*	The Work Order process overall is too heavy, especially in big projects the fixed duration of the WO process is not enough to complete WO	
2.	Practices: *Cost Estimation*	No common practice and tool for *cost estimations*. Onsite and offshore use different Excel templates which are not comparable; this generates lot of unnecessary work during WO-process	
3.	Proposal planning: *Initial Documents*	Business requirements from the customer are often in too high level	
4.	Proposal planning: *Resource planning*	Offshore party has been taken into process usually too late within the process	
5.	Proposal planning: *Initial Documents*	Customer documentation is translated usually too late in the process	
6.	Proposal planning: *Cost Estimation*	Lot of different system-specific Excel templates for cost estimation in onsite. Lot of system specific templates for cost estimation, which are not uniform with offshore	

Table 8 above also contains the evaluation of the business impact made by the interviews on the scale of green, yellow and red (meaning green – limited, yellow – intermediate, red – significant).

As seen from the Table 8 above, the problems that has the most significant impact on the business relate to both groups, the practices and proposal planning, but mostly to the proposal planning stage. Among them, the cost estimation problem was considered as especially important and also critical to business by the interviewees. One interviewee commented on that problem as follows:

> *We spend lot of time on cost estimation in both onsite and offshore, however our way to do estimates differs from each other enormously as both sides do estimates into different structure, using different units and overall estimate things from different angel. As a result we spend lot of valuable time during the process to just unify those estimates. If we had streamlined estimation practices and tools from the beginning, we could achieve better results in less time when doing proposal planning.*
>
> (Person-1).

That statement illustrates the significance of *cost estimations* discrepancies. It also points to a possible way to improve it by creating or developing a common method for cost estimations. Presently, the current state lacks such synchronized practices and

the problem affects many stakeholders in the WO-process. If discussed deeper, the interviewees pointed that this problems relates to other challenges, including: first, the collaboration between onsite and offshore is not at the level it could be as the problem causes interference to communication and calculation of the business case of the project during the WO-process. Second, the management may not receive constantly up-to-date information about the current state of the business case within the WO-process. Lack of such information is critical, because working during the WO-process is intense and real-time information is necessary for support of decision to the management. Third, the long term risks increase if estimations include some uncertainty or possibility of an error in calculations due to differences in the methodologies between the onsite and offshore. These risks may become visible especially to the customer which then becomes a question of reputation, reliability and credibility of the case company in the eyes of the customer. As a result, cost estimation was mentioned by many interviewees as a key challenge.

Another problem *initial documents* in both *practices* and *proposal planning* area are not detailed enough, have not only significant impact on business but also on quality of the WO-process. In Data 1 collection phase, the interviewees recognized the problem as a wide issue in the case company, as one interviewee expressed it:

> *Very often we got business requirements from the customer that are in too high level causing lack of understanding of the scope of the project. Sometimes requirements are not clear enough for the customer itself.*
>
> (Person-7).

This opinion was often repeated by the interviewees and thus makes an important finding. Possible misunderstanding of the scope of the project in an early phase leaves the door open for interpretation in the later phases. In case some important phase or task is not mutually and equally understood with the customer, it can end up in bringing down benefit for the customer and the loss for the case company. Summing up, both, the customer and the case company, are under the influence of this particular problem. Despite the fact that expression above presents mostly the opinions from onsite, some offshore people share this view.

In addition to that, the problems described above have impact on the WO-process overall but in a wider form they reach to impact on the Project Delivery process as well. At worst, occurrence of most of the problems simultaneously might result the WO-

process with bad quality of the end results and thus produce unhealthy premises for the forthcoming project.

3.3.2 Key Problems of Project Delivery Process

The project delivery process includes 11 different key findings that are evaluated and recognized as Priority level 1. They are divided into several different sub-areas such as culture, knowledge transfer, language, project planning, practices, team building and tools. Table 9 below shows the challenges in the Project Delivery process and the evaluation of the business impact made by the interviews (meaning green – limited, yellow – intermediate, red – significant).

Table 9. Most significant findings in the Project Delivery process.

Number	Area	Description of the problem	Business impact
1.	Culture	Offshore people do not indicate directly if they have not understood something well enough, instead they try to find reply to unclear issues by roundabout.	
2.	Knowledge Transfer	No common document repository for recording project related changes per system.	
3.	Language: *Communication*	Business and application related vocabulary is missing and people use often different terms for a same thing, need is for companywide vocabulary.	
4.	Project Planning: *Resourcing*	No dedicated offshore support person in onsite in the project.	
5.	Practices: *Reporting*	Onsite and offshore have different templates for reporting.	
6.	Practices: *Reporting*	The project accounting tool for Portfolio management reporting is inadequate	
7.	Practices: *SW-Development*	Regular code reviews are missing	
8.	Team building: *Resourcing*	Team building (onsite/offshore) takes lot of time during the project.	
9.	Tools: *Communication*	Poor audio line to offshore and difficult current tools like LiveMeeting, Lync is recommended by interviewees.	
10.	Tools: *SW-Development*	Version handling tool is missing in some particular older applications.	
11.	Tools: *SW-Development*	Configuration management tool is missing in particular older applications	

As seen from Table 9 above, the *reporting* and *communication* problems (areas 5,6 and 3,9) make the most important findings in business impact viewpoint. The *reporting* problems are recognized widely among project management professionals and considered to having large impact on business. One evidence of this is a statement of one interviewed project manager:

> *As we already know what to report to the management and customer and we have formal templates for reporting this end, we should expand current practices to cover offshore reporting practices. By doing this we can confirm that reported data does not change on the interface between offshore and onsite and we can also reduce unnecessary work done with incompatible reports.*
>
> (Person-1).

This statement shows that the reporting practices seems to be in order in the onsite location, but the current reporting practices in onsite are not expanded to cover offshore. Offshore have their own reporting templates and practices, which are not uniform with offshore templates and practices, and very often reporting practices are agreed case by case between onsite and offshore, so there are deviations in reporting between the projects. This particular problem not only causes additional work but also increases risk of error in reporting. Possible error in reporting has multi-dimensional effects. For example, in hypothetical situation where monthly report includes some serious errors due to deviations in reporting between offshore and onsite, the management get wrong vision of the progress of the project. Moreover, the customer may inadvertently be reported false economic data. If the error is not immediately detected, it can accumulate and therefore cause problems in the medium term.

The *communication* problem has identified as an important topic among the interviewees and especially in business analysis and software development point of view. The problem comes up often during the analysis, design and code & unit testing project phases. Typically people in both offshore and onsite discuss about the business related matters with different terminologies. Difference in terminologies used in business related terms causes misunderstanding and additional work for clarification of issues. Extension of the *communication* problem is not only limited to the collaboration between offshore and onsite, but it also applies to onsite activities more widely. Problem in onsite is that one and common English vocabulary for business terminology does not exist, but few vocabularies are at the place and used by different units in the case company. This problem occurs especially when cooperating across the business unit boundaries and also in cooperation between the offshore and onsite.

3.4 Summary of Current State Analysis (Two Processes) and Focus Areas

Sections 3.3.1 and 3.3.2 showed the current and the most significant findings in both the Work Order and Project Delivery processes from the business impact viewpoint. If summarized, the findings from the current state of both processes in the case company point to the following challenges.

First, the current state of *the Work Order process* includes findings that are mainly focused in two main areas in the WO-process. Figure 7 below shows identified challenging areas in the current state of the Work Order process marked with red oval figure.

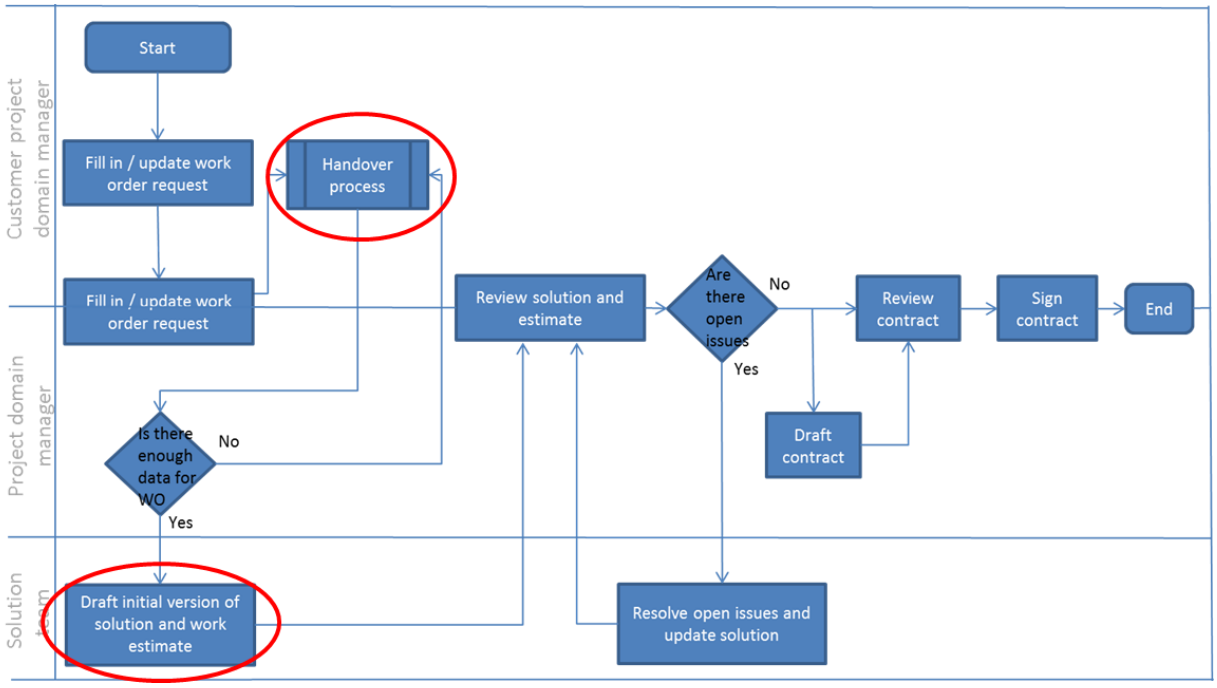


Figure 7. The current challenge areas in the work order process.

As Figure 7 shows, two steps in the WO-process are recognized to contain the most of the current challenges. The work estimation related challenges, which were discussed in more detail in Section 3.3.1, make the most significant current challenges in the *draft initial version of solution and work estimate* step of the WO-process. The challenges identified in this step were recognized the most significant findings as they were prioritized in level 1 among the interviewees and also having big impact on the business. The challenges in this area are related to cost estimation practices and tools used for the estimation. Accurate cost estimations brings reliability and predictability to the pro-

ject delivery and contributes to risk management, therefore cost estimations overall plays important role in terms of business.

Another identified challenge in the WO-process is the *handover process* step, including also priority level 1 findings with big impact on the business. The handover process is prerequisite for the *draft initial version of solution and work estimate* step. Very often challenges in *handover process* are related to the level of preliminary specifications of the service for which a proposal is requested. The problem in this area has many aspects. First, unclear or too high level specifications of the service may cause several iteration rounds, which binds time from both the customer and the case company. Second, this problem includes realistic risk that part of the unclear specifications will roll to the upcoming project and the risk realises at some point of the project.

Other particular steps of the WO-process were not identified as a challenging or in need of improvement during the Data 1 collection. For example, the lead time of the WO-process was experienced as too short in big projects, which is not always the case in small or medium size projects. Summing up, the WO-process seems to be in order for the most part, but the starting steps in the process requires some improvement. Such improvements might bring business benefits for the company and enable stability to the project delivery.

Second, the *Project Delivery process* contains many problems that do not apply to only one part of the process but many and, in some cases, the challenges throughout the process. Many of the Project Delivery challenges also reflect to a more general context of the project work. For example, different *cultural* or *language* related problems were recognized among the people, from both onsite and offshore. Since these types of problems are difficult to assign to any particular part of the Project Delivery process, they are not marked in Figure 8 below which shows only the key and recognizable challenges of the Project Delivery process. Thus, Figure 8 shows the most problematic areas of the project delivery process marked with red oval below.

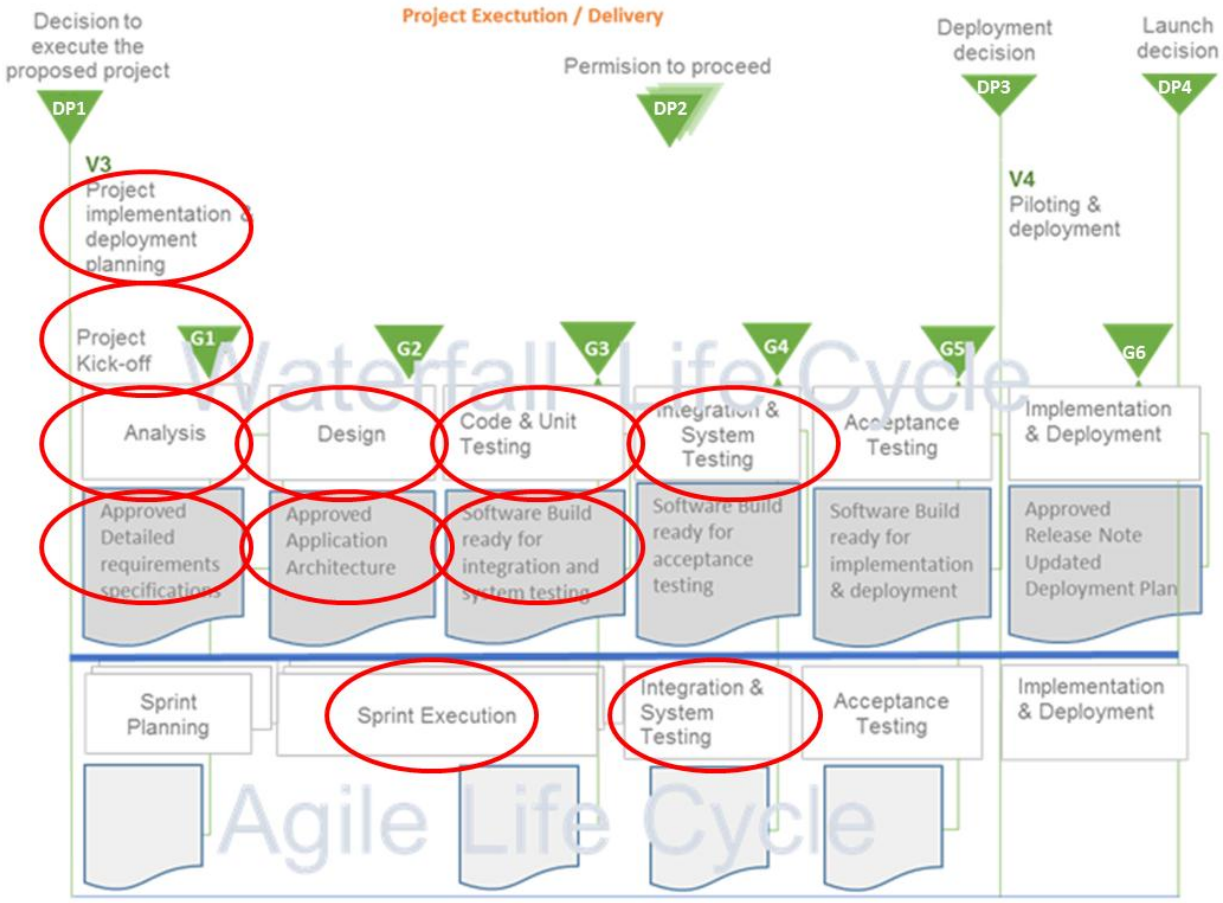


Figure 8. Identified problematic parts of the project delivery process.

As Figure 8 shows the current challenges of the Project Delivery process are related to the beginning and middle stages of the process as the end part of the process have practically no any identified problems. The problems described above in Figure 8, which are not directly related to the process and hence not marked in the following process chart, are reported to the management of the case company among other challenges and their further processing will be decided case-by-case by the management.

Although the challenges revealed in the Project Delivery process seem to be many, in many respects, they are relatively easy to solve. For example, the *common reporting practices* that would cover all projects between onsite and offshore could be relatively easy to implement. The existing positive experiences from reporting in customer interface could provide a basis for extending the reporting practices also to offshore. The common and shared reporting practices through the organization to the customer create the conditions for dealing with accurate information and reduces unnecessary work. Therefore, it was this area in particular that was decided to be taken as a focus of im-

provement efforts in this study. More details of the challenges of reporting practices are discussed below.

Summing up, the both processes are interrelated and depended on each other. The concept of the two processes, where first, the WO-process is dedicated to response to the request for proposal from the customer and, second, it results in a successful completion of the WO-process, seems to be functional but includes some weak points. Current state of the Project Delivery Business Unit can be regarded as functional and relatively straightforward in general level. Nonetheless some business benefits can be gained by doing some improvements to the both processes.

Most significant problems in *the Work Order process* relate either to proposal planning or practices areas. In the proposal planning area, the business requirements from the customer were considered to be on too high a level and the current system specific cost estimation templates were considered to be not uniform with the offshore. *The Project Delivery Process* also includes a number of challenges which in most cases have either middle or low business impact. Notwithstanding this fact, the reporting practices were considered to have a visible and important footprint throughout the organization to the customer. Therefore, the challenges in the reporting practices were selected as the most significant findings and the focus area in the Project Delivery Process. The next section discusses the reporting in existing knowledge point of view.

3.5 Examination of the Challenges in the Current Reporting Practices

In order to specify the challenges of the current reporting practices in more detail, the results of the current state analysis were further analyzed, focusing on the reporting practices in particular.

3.5.1 Map and Description of the Current Reporting in the Project Delivery

The current reporting in the case company consists of report templates, reporting cycles and different roles involved in the reporting process. The current map of reporting is shown Figure 9 below.

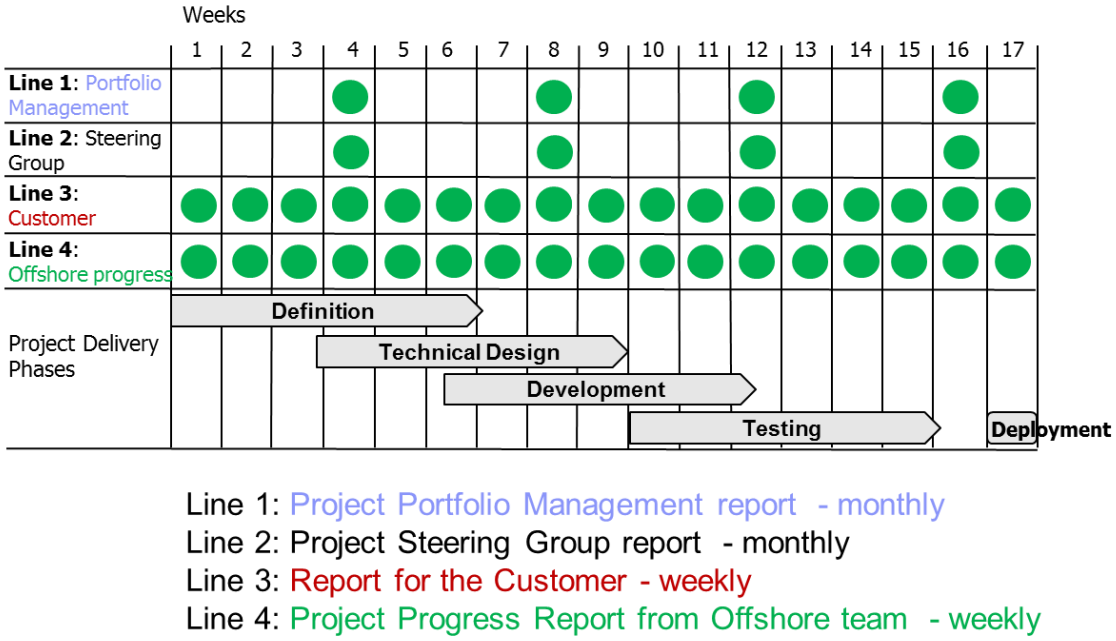


Figure 9. The current reporting map in the case company.

Figure 9 shows four reporting lines in the case company Project delivery process. The green circles reflect the reporting frequency, for example, in Line 1, the Portfolio management, they show the report which happens every four week. Line 2, Steering group, also receives a report every four weeks, but their reporting cycle is often related to the progress in a project in general and various project phases. The customer (Line 3) receives their weekly report every week and the offshore team (Line 4) is expected to report their progress also on a weekly basis. Reporting responsibilities are divided so that the offshore project manager reports on the project progress to the onsite project manager. The onsite project manager is responsible for reporting to the customer, steering group and portfolio management group.

3.5.2 Identification of Improvement Needs in the Current Reporting

The findings related to the reporting practices were collected from the interviews, workshops with interviewees and discussions with other than interviewed people in the case company. A deeper analysis of the findings related to reporting included the following identified issues: a) offshore is lacking a proper weekly report, b) offshore is lacking the general process and awareness of reporting, c) reporting is not consistent through the business line, d) the current finance forecast report is missing some information, and e) the project accounting tool for HC reporting is inadequate. Examples below demon-

strate the content and significance of the identified issues visible in the current reporting practices.

First, offshore weekly reporting is currently agreed on a project by project basis, meaning that there is no common and formal Template for reporting from offshore to onsite. As the reporting practices vary across the projects, accuracy of the progress data varies too, so that some data is obviously lacking in some of the offshore reports. This problem is visible especially when it comes to reporting of: a) the issues that offshore has faced, b) the resource assignments, and c) the financial information between baseline and forecast. This problems were widely discussed in Data 1 and recognized as an important issue.

Second, the current project accounting tool for *Health Check* (HC) reporting is inadequate since it is missing vital information. The Portfolio management monitors the performance of the project portfolio and each individual project through the HC Report. It is a project manager's responsibility to fill in the financial data into the HC Report monthly. Presently, the project manager uses several sources for collecting the necessary data for the HC report, including the project accounting tool. Figure 10 below shows a snapshot of the summary tab in the project accounting tool.

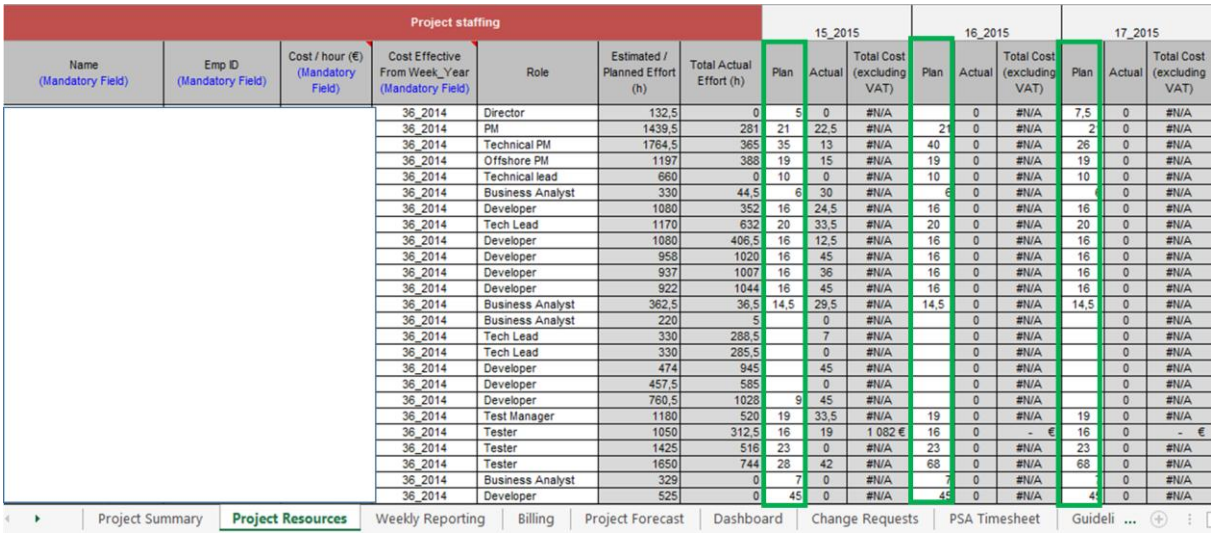
Name of the project	SW Development	Summary			
Project Manager	Mr. Manager				
	(Date) Initial Project estimate	(Date) Actual to Date	Remaining	(Date) Updated Project Estimate	Change
Revenue	500 000,00	300 000,00	200 000,00	520 000,00	20 000,00
Own Direct Costs	300 000,00	265 000,00	35 000,00	300 000,00	0,00
Contingency				0,00	0,00
Total Own Direct	300 000,00	265 000,00	35 000,00	300 000,00	0,00
ABC costs	25 000,00	20 250,50	3 000,00	23 250,50	-1 749,50
Subco Costs (3rd party)	65 000,00	49 500,00	5 400,00	54 900,00	-10 100,00
Total 3rd party	90 000,00	81 000,00	6 500,00	78 150,50	-11 849,50
Total Direct Costs	390 000,00	346 000,00	41 500,00	378 150,50	-11 849,50
Margin	110 000,00	-46 000,00	158 500,00	141 849,50	31 849,50
Margin%	22,00	-15,33	79,25	27,28	-2 172,72

Figure 10. Summary Tab of the Project Accounting Tool.

Figure 10 show the summary tab of the tool and filled in with fictional data. In addition to that big amount of data, the tool includes separate tabs for forecast estimation and history information, also summarized in the summary tab. As seen from Figure 10, the tool provides common financial figures such as revenue, costs and margin for different moment of time as initial project estimate, actual to date, remaining and updated project estimate. The point is that this information can be partially used to fill in data in the

HC Report. Two snapshots of the HC report are presented in Appendix 9, which include the snapshot of the estimates and financial tabs of the HC tool. This view also reveals what information can used directly from the tool (green squares in the snapshot). As Appendix 9 shows, some information can be gained from the tool in the financial tab; however, other tabs requires other sources or additional calculating in order to be filled in. Thus, among the current problems with the project accounting tool the following challenges can be named: a) data fields in both the tool and the HC Report show a mismatch in some places, b) the tool does not provide all required data for the HC Report, c) the current data from the tool is ambiguous in some places, and d) the tool does not provide any help texts giving guidelines or examples how to fill in the tables.

Third, the financial forecast report is currently missing some important data. Figure 11 below is a snapshot of the financial report revealing the project resources tab.



Project staffing							15_2015			16_2015			17_2015		
Name (Mandatory Field)	Emp ID (Mandatory Field)	Cost / hour (€) (Mandatory Field)	Cost Effective From Week_Year (Mandatory Field)	Role	Estimated / Planned Effort (h)	Total Actual Effort (h)	Plan	Actual	Total Cost (excluding VAT)	Plan	Actual	Total Cost (excluding VAT)	Plan	Actual	Total Cost (excluding VAT)
			36_2014	Director	132,5	0	5	0	#N/A		0	#N/A	7,5	0	#N/A
			36_2014	PM	1439,5	281	21	22,5	#N/A	21	0	#N/A	2	0	#N/A
			36_2014	Technical PM	1764,5	365	35	13	#N/A	40	0	#N/A	26	0	#N/A
			36_2014	Offshore PM	1197	388	19	15	#N/A	19	0	#N/A	19	0	#N/A
			36_2014	Technical lead	660	0	10	0	#N/A	10	0	#N/A	10	0	#N/A
			36_2014	Business Analyst	330	44,5	6	30	#N/A	6	0	#N/A		0	#N/A
			36_2014	Developer	1080	352	16	24,5	#N/A	16	0	#N/A	16	0	#N/A
			36_2014	Tech Lead	1170	632	20	33,5	#N/A	20	0	#N/A	20	0	#N/A
			36_2014	Developer	1080	406,5	16	12,5	#N/A	16	0	#N/A	16	0	#N/A
			36_2014	Developer	958	1020	16	45	#N/A	16	0	#N/A	16	0	#N/A
			36_2014	Developer	937	1007	16	36	#N/A	16	0	#N/A	16	0	#N/A
			36_2014	Developer	922	1044	16	45	#N/A	16	0	#N/A	16	0	#N/A
			36_2014	Business Analyst	362,5	36,5	14,5	29,5	#N/A	14,5	0	#N/A	14,5	0	#N/A
			36_2014	Business Analyst	220	5		0	#N/A		0	#N/A		0	#N/A
			36_2014	Tech Lead	330	288,5		7	#N/A		0	#N/A		0	#N/A
			36_2014	Tech Lead	330	285,5		0	#N/A		0	#N/A		0	#N/A
			36_2014	Developer	474	945		45	#N/A		0	#N/A		0	#N/A
			36_2014	Developer	457,5	585		0	#N/A		0	#N/A		0	#N/A
			36_2014	Developer	760,5	1028	9	45	#N/A		0	#N/A		0	#N/A
			36_2014	Test Manager	1180	520	19	33,5	#N/A	19	0	#N/A	19	0	#N/A
			36_2014	Tester	1050	312,5	16	19	1 082 €	16	0	- €	16	0	- €
			36_2014	Tester	1425	516	23	0	#N/A	23	0	#N/A	23	0	#N/A
			36_2014	Tester	1650	744	28	42	#N/A	68	0	#N/A	68	0	#N/A
			36_2014	Business Analyst	329	0	7	0	#N/A	7	0	#N/A		0	#N/A
			36_2014	Developer	525	0	45	0	#N/A	45	0	#N/A	45	0	#N/A

Project Summary | Project Resources | Weekly Reporting | Billing | Project Forecast | Dashboard | Change Requests | PSA Timesheet | Guideli ...

Figure 11. The financial forecast report.

As seen from Figure 11, the financial forecast report includes several tabs with different kind of project information. The current challenges with the report include: a) resourcing cannot be done by using percentages (green squares in Figure 11), and b) revenue information is not available in the report.

3.5.3 Summary of Key Findings from the Current Reporting Practices in Project Delivery

If summarized, the current state analysis related to the challenges in reporting practices clearly points to the three areas related to the project reporting practices in the Project Delivery process, which need improvement. They are shown in Table 10 below.

Table 10. Project reporting challenges in the case company.

	Problems focused into one area	Description of identified gaps / *What? How? By what meant to report?*
1.	No common and formal report for reporting from offshore to onsite	There is a need for having progress report from offshore in a form that current weekly report does not support. Practices and content of offshore reporting varies project by project. List the missing details here includes, for example: - The current issues with the project - Resource assignments - Project data compared between baseline and forecast
2.	The project accounting tool for Portfolio management reporting is inadequate	Excel tool is non-uniform with Portfolio Management HC report data. It requires additional information and conformity in accordance with HC. List the missing details includes, for example: - Data gathered from other source than the tool for HC, should be included in the tool - Field names should be matched between the tool and HC report - Help texts to provide guidance filling in and using the tool
3.	Finance Forecast report is missing some practical financial information	Lacking of some financial information causes extra work. Adding some recognized information in tool might save worktime and increase accuracy of the data. List the missing details includes, for example: - Resource allocation should be done by using percentages - Revenue information should be visible

The findings from Table 10 suggest that the project reporting challenges are related to three areas: a) the offshore team is lacking the reporting Temple for the offshore progress reporting, b) the project accounting tool is waiting for improvements, and c) the lack of data in the finance forecast report. These challenges point to the more general questions related to reporting practices, namely what, how and by what means the effective reporting practices should be done and how to improve them.

The current state analysis of the existing reporting practices in the Project Delivery process was summarized out of totally 53 findings revealed from both the WO-process or PD processes. Figure 12 below shows the logic of categorization of the findings to the focus areas and also points to the three main questions which need to be addressed to explore and find an effective solution to the identified challenges.

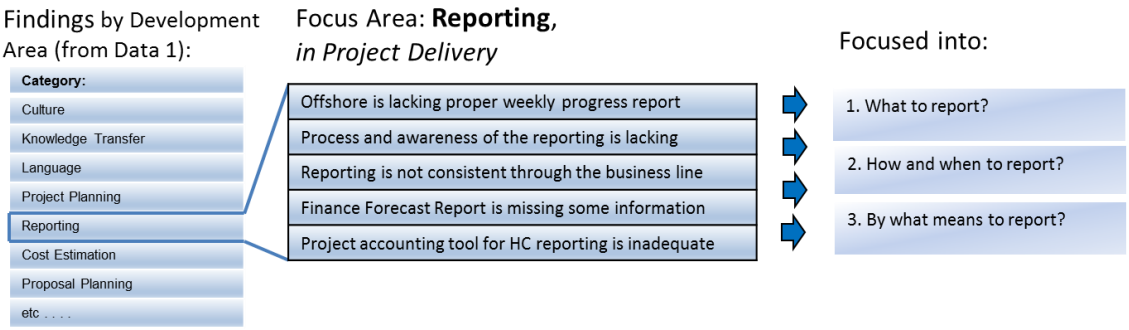


Figure 12. Focus areas and main questions from the current state analysis.

As seen from Figure 12, the focus area among the development areas was chosen to be the current reporting practices. The identified challenges included five different problems identified in Data 1. The main challenges were further categorized into three logical questions related to the more general problems of reporting for further examination in the literature. Due to significance of reporting practices to the whole Project Delivery process, this areas has been chosen to be the main focus area of this study. The next section discusses the reporting improvements from the best practice point of view.

4 Existing Knowledge in IT Project Reporting

This section discusses the existing knowledge and best practice in the project reporting field. The section starts with overview of project reporting following three main topics as project control, project monitoring and reporting and reporting practices, reflecting the outcome from CSA. Finally, it introduces the conceptual framework of this study.

4.1 Overview of Project Reporting as Part of Project Management

Project management means project based operations and delivery. In order to meet the obligations of the project, as well as to keep all stakeholders informed about the project related topics, a project requires methods to help managing the project related matters. Chemuturi (2013) describes *project management* as the application of knowledge, skills, tools, techniques and resources to the project activities to meet or exceed stakeholder needs and expectations. It is the discipline of planning, organizing, staffing, coordinating, and controlling project activities to ensure that project deliverables conform to specifications, and are on time and within budget (Chemuturi 2013: 16). In addition to that Patel (2008) writes that *Project management* is composed of several different types of activities as planning the work or objectives, organizing the work, risk management, resource management, controlling project execution, quality management and tracking and reporting progress among others (Patel 2008: 7). Thus, it can be said that the project management provides a framework for the project delivery offering necessary tools and practices within.

According to Patel (2008), a *project* is a temporary and one-time endeavor undertaken to create a unique product or service that brings about beneficial change or added value. This property of being a temporary and a one-time undertaking contrasts with processes, or operations, which are permanent or semi-permanent ongoing functional work to create the same product or service over and over again. Moreover, a project is a carefully selected set of activities chosen to use resources (time, money, people, materials, energy, space, provisions, communication, quality, risk etc.) to meet the predefined objectives (Patel 2008: 2).

In information technology especially, the typical way to deliver services or products is a project delivery model. Though the project management is a topic, which is based on solid empirical knowledge and practices that are refined in many companies, the pro-

ject delivery is still challenging. One proof of the project challenges is the claim (Cane 2007) that technology projects fail regularly. He explains failures by schedule delay, budget overrun, non-functional technology and deliverables that does not meet the customer expectations (Cane 2007:1). That explanation shows how challenging project delivery can be. It also indicates that each project is a unique entity, though they have similarities, and even though same project management practices had applied to multiple projects, the end results of the projects would differ from each other significantly.

One part of the project management and partial prerequisites for the communication in the projects is *project reporting*. Systematic project reporting process and practices can provide up to date and timely information to the stakeholders. Providing information in a form which satisfies the stakeholders is only one part of the reporting as one aspect is to gather information from several sources and refine and analyze that information into desired form. The next topic discusses project controlling that makes it possible to gather required information for reporting.

4.2 Project Control in IT Projects

Since the main aspects of the project management and pointed out that one part of the project management is controlling the project execution this activity can be separated into a specific area from other reporting practices. When other project reporting practices includes for example reporting tools, templates or stakeholders, controlling the project execution provides input, or in other words, raw data, for further data handling and processing. Hence project controlling establish a data source for reporting.

Business practice suggests that the project control typically involves the five activities. First, *the planning activities* based on approved organizational norms or baselines. Second, *measuring progress* (schedule, quality, productivity, and cost) of the project periodically with the time intervals specified depending on the nature and aims of the project. Third, *comparing* the actual progress with the planned progress and finding the variances, which is done with the purpose to evaluate the project progress. Fourth, taking *corrective actions* for variances. If, for example, the schedule in not on track with the baseline and thus causing variance to planned schedule, project manager is responsible to plan and execute corrective actions in order to get project back on planned schedule. Fifth, taking preventive actions to keep the actual progress aligned with planned progress in the future. For a project to be completed on time and within the

approved budget, close control of the project execution must be exercised (Chemuturi 2013: 147). Thus, the project control provides the skills to carry out the project according to the project plan. In addition to this, appropriate project control creates the conditions for collecting and analyzing appropriate information from the project and moreover to refine that information into form of the project report.

The project progress measuring includes four main parameters that are a) schedule, b) cost, c) quality and d) productivity. Controlling of these parameters requires several measurements, analyzing and performing numerous activities to keep the project under control. The following sub-sections discuss these parameters in more detail.

4.2.1 Schedule Control

Project schedule, according to Hulet (2006) helps to predict the completion and milestone dates of the project. It is also used to manage daily activities and resources and to record status (Hulet 2006:47). For that reason the schedule constitutes a body for the project and thus plays significant role in the project management. Chemuturi emphasizes the significance of the schedule control by claiming that control of the project schedule is the most important aspect of IT project execution. Further on he reveals that delaying the schedule would have the consequences of delaying the planned business operations. That means we would not only have to bear the cost of project delay, but also lost revenue that would have accrued from the planned business operations using the IT infrastructure set up by the project (Chemuturi 2013: 148). Regardless of the outcome that the delayed schedule results, Hulet (2009) points out that main issue in the schedule risk analysis is uncertainty in activity duration (Hulet 2009: 72).

IT project schedule typically includes activities that are to be performed either sequentially, meaning they performed one after the other, or in parallel, when they are performed at the same time, concurrently. Critical activities are those that cannot be delayed at all. In other words, any delay in completion of a critical activity would delay the entire project by the same amount. Chemuturi (2006) summarizes the project schedule control by a) all critical activities are closely monitored and all required resources are provided on time b) all critical activities schedule and c) the noncritical activities are completed before their latest completion dates (Chemuturi 2006: 150). Hulet (2009) supplements that idea by stating that showing a project's schedule problems clearly and realistically in the schedule early in the project offers the possibility of fixing those

problems. If the scheduler is forced to use late-date constraints after the schedule baseline has been set, they may communicate to management that the project is late by focusing on the paths with the most negative float. Showing negative-float paths indicates clearly that the project is not finishing on time while technically adhering to a date that has proved to be unrealistic (Hulett 2009: 53).

4.2.2 Cost Control

Project cost includes all cost incurred during execution of the project and typical project costs are for example staff costs, material costs, cost of capital and travel costs. Project manager is responsible for following project costs and for example stuff costs are typically followed through hour booking system. Nature of especially waterfall type of projects includes advanced planning of the schedule, resources, deliverables and cost, among others. The project costs could be either fixed or variable as a type. In literature Chemuturi (2013), the fixed costs are defined as costs that are not tied specifically to project execution or any deliverable, but instead to the duration of project. Example of the typical fixed costs are salaries, office expenses or interest on financial expenses. Variable costs, in turn, are those expenses that are tied to payments made for the execution of the project. These include payment for materials procured, contractor payments against completed work, and expenses on utilities such as power, communications, and so on Chemuturi (2013: 151-152).

Chemuturi (2013) suggest few ways to control and contain or save in fixed costs of a project. Firstly, paying attention to close monitoring of the schedule in order to complete the project on schedule, or if possible even sooner than planned. He also suggests to set these cost low in the first place, if possible, which means careful project planning. Second, the project resource allocation should be consist. In a case where a project is fully allocated from the beginning, fixed costs will be high, therefore only few essential staff should be allocated in the beginning and allocation should be ramp up only when additional resources become essential. As important as ramp up of allocation during the project is de-allocation staff immediately upon completion of their assignment on a project, which saves the fixed cost component of the project. Third, the cost of capital incurs some expenses. To minimize the cost of capital employed is to carefully plan ahead and meticulously schedule the requirement of funds. When these dates are accurately predicted, funds are not unnecessarily locked up waiting to be spent. Accurate projection of the funds requirement and ensuring the project adheres

to the schedule during execution would reduce wasteful expenditure on the cost of capital employed (Chemuturi 2013: 153).

There are many ways in an IT project to leading escalated project costs. According to Chemuturi (2013) the major expenses of fixed costs stem from overhead, salaries, and office expenses, therefore carefully project planning and scheduling the ramp-up and ramp-down of resources in order to contain fixed costs are essential in cost control (Chemuturi 2013: 152). The cost control starts partially from the project planning phase, where some of the decisions have done have significant impact on the project in cost wise. The cost control requires deep understanding of the project scope, ability to see the project progress in longer range and ability to response to changes in the planned costs.

4.2.3 Quality Control

ISO (ISO 9000, 2005) defines quality as a degree to which a set of inherent characteristics fulfils requirements (ISO 9000, 2005: 3.1). According to Chemuturi (2013) ensuring quality begins in the planning stage of a project wherein standards are selected to which the project must adhere to. Selecting and communicating the appropriate standards to all concerned with project execution is the first step. Testing of all project outcomes is important and for testing each piece of equipment or software, a test plan need to be planned, test cases to be defined, and finally executed them. Acceptance testing of the software is conducted when the development team offers it, to ensure all requirements are met and it is working as desired. One important aspect of quality control to note is that the authority to hold up work even to the extent of affecting the schedule exists. Sometimes it may genuinely be necessary to delay the work even at the risk of affecting the schedule (Chemuturi 2013: 155). Quality assurance requires testing professionals to plan and execute testing and necessary system to track findings from testing and their status. Part of the quality control is to prevent delivery of an outcome that is under agreed standards, even though it would require bending the project schedule.

4.2.4 Productive Control

Chemuturi (2013) defines productivity as the amount of effort expressed in person-hours/minutes for accomplishing a unit of work by an averagely skilled person putting in an average level of effort. Example of using productivity is while estimating the human effort required in accomplishing the work, if productivity is poor, it takes more effort per unit of work than estimated. The ramifications of poor productivity are an increase in project effort and related costs and schedule slippages. Therefore, it is essential to ensure that the allocated number of resources equals the estimated number when normalizing the skill levels of allocated team members to the average level of skill. If the number is not equal, there will be a variance between the estimated effort and actual effort, leading to possible slippage of the schedule and a cost variance (Chemuturi 2013: 156). The allocation of resources and focusing competence rightly, has possibilities to impact on productivity of a project.

4.3 Project Monitoring and Reporting as a Continuous Process

According to Roberts (2007) monitoring is the observation and supervision those in the management team must do to know the condition of their projects. Without reporting it is not easy to monitor a project and without appropriate level of monitoring a project risk level may increase. Each level in the management hierarchy need information in a form and at a frequency that allows the exercising of control without encroaching on the responsibilities of other levels. It is also critical that such reports show the extent to which the project is likely to meet its completion expectations, giving any necessary re-forecast of the expectations originally set out in the project plan. (Roberts 2007: 170). As the project organization contains different levels in the hierarchy such as project team, steering group or portfolio management team, each of them have different needs and requirements towards project reporting. This means that each tier needs a report or reports that are designed for that particular level context. The next sections discuss the different management tiers and recommends suitable reporting practices based on existing knowledge in literature.

Summing up, monitoring and reporting progress, being a continuous activity of project management, has a significant role in the project management because reporting gives visibility of a project status to the project stakeholders.

4.3.1 Project Portfolio Management Team

Companies, especially some IT service providers, typically have/ may have several projects ongoing simultaneously. In such a situation, the management of a company might want to see the overview of all projects at once instead of listening to individual reports from teams, say, one by one; especially if the same teams are responsible for more than one project. This model is illustrated in the idea of *the project Portfolio management*. Moustafaev (20010) defines *the project portfolio management* as a methodology for analyzing, selecting, and collectively managing a group of the current or proposed projects based on numerous key characteristics while honoring constraints imposed by management or external real-world factors (Moustafaev 2010: 215). According to Roberts (2007) *the portfolio management team* is ultimately responsible for the state of the portfolio, thus the team must meet regular basis to evaluate the health of the portfolio. A typical cycle for portfolio management team meetings, according to Roberts (2007), is once in a month, but readiness to meet at short notice in case of exceptional matters should be in place. (Roberts 2007: 171).

The portfolio management is known to include three key requirements that each project or portfolio typically meets according to Moustafaev (2010). First, each project as well as the portfolio of projects should maximize the value for the company. As the value might have different meaning depending on the company, in this context it refers to economic measures such as return on investment, net present value, competitive advantage, expected sales and so on. Second, the candidate project should preserve the desired balance in the portfolio mix meaning that project portfolio should avoid certain situations. For example, the portfolio should avoid situation where it includes too many small and visionary projects or too many short-term and not enough long-term strategic projects. Moreover, successfully balanced portfolio does not include projects with a disproportionate amount of resources devoted to a few business areas while other important areas are in need or projects with a poor risk management. Third, the final portfolio of projects should be strategically aligned and should reflect the business's strategy. The fit to the strategic goals requirement makes certain that company finances and other resources are not wasted on ventures outside of the organization's sphere of strategic interests (Moustafaev 2010: 216). That is to say, changes in a company's strategy is shown with a delay in the project portfolio.

Management and monitoring of many ongoing projects requires practices that differentiate from one project monitoring and management to another. Portfolio management team requires formal report in the portfolio team meeting for the monitoring health of the portfolio.

4.3.2 Steering Group

In typical IT service delivery project, s*teering group* consists of people with mandate to make decision from the customer and IT service provider. Roberts (2007) explains that s*teering group* directs an individual project and is responsible for making sure that the expectations set out in the business case for the project are met. It will commission the project plan from the project manager and, assuming it is agreed, will authorize the start of the project as well as it also authorizes any significant changes to the plan that are outside the project manager's authority. As the project manager will have only limited authority, the project steering group adjudicates on any conflicts within the project and resolves problems between the project and third parties, internal departments or other projects. Steering group has been given its authority by the portfolio management team once the financial and other resources have been allocated (Roberts 2007: 45). Typically steering group meetings are held regularly, often monthly basis, where project manager reports the status of the project.

Ciampa (1992) describes five elements that makes the successful steering group and they are a) the steering group should be made up of senior managers b) the steering group must have public license to act from the leader and have constant, visible support of the top team c) while steering group membership is an ad hoc responsibility, the time and effort that must be devoted to it is substantial and should be reflected in the organization's normal performance appraisal system d) the role of the steering group must be clearly defined by senior management before it begins to operate e) the pace at which the steering group gets up speed is directly related to going through a teamwork development program and the establishment of a plan for the rollout of total quality (Ciampa 1992: 1). These elements, in addition to that they make the successful steering group, are also back to project manager.

Most members of a steering group and other stakeholders are interested to see the key project management information of the project summarized in to a report. Roberts suggests the summary project forecast report for such a purpose (Appendix 1. Summary

project forecast report). The summary project forecast report provides a snapshot of the project at a level that should be satisfactory for the steering group, but sometimes there might be a need to know more details. The reports for more detailed reporting purposes could be, according to Roberts, the project forecast reports. There are several project forecast reports such as the time forecast report (Appendix 2), cost forecast report, which includes two different type of cost reports, cost by type (Appendix 3) and cost by product (Appendix 4), project quality forecast report (Appendix 5) and benefits forecast report (Appendix 6). The terms used in most of these reports (Appendix 1-6) are explained in Table 11 below

Table 11. Descriptions of the details in forecast reports (Roberts 2007: 181,182).

Detail	Description
Baseline	This is the original set of data agreed by a recognized authority which should be used as a stable foundation against which to track variances. There may be a baseline end date, a baseline budget and a baseline benefit, which were all agreed when the business case and project governance report were approved at the end of the initiation stage. The baseline should not be changed, so the effect of changes can be measured reliably. There are, however, rare circumstances when it is necessary and sensible to amend the baseline; these will be considered later.
Actual to date (atd).	This is a range of measures that should increase as the project progresses. For instance, if $300 of a baseline $500 budget has been spent, the actual to date is $300.
Estimate to complete (etc).	This is a crucial set of information in any project report because it is the latest and most recent estimate. This figure represents the amount to come on top of the actual to date. For instance, if the actual to date is $300 and the baseline was $500, it does not follow that the estimate to complete is $200. The costs may have increased since the baseline was approved and the project forecast report must record this. If the estimate to complete is $400, the new total is $700.
Forecast at completion (fac).	This is the sum of actual to date and estimate to complete – $700 in the example above.
Variance	This is the difference between the baseline and the forecast at completion. In the example above, it is –$200 (the baseline $500 less the forecast at completion $700). When compared with the agreed escalation criteria, this figure enables the red, amber and green alert markers to be created.
Box colours	Grey boxes must be completed whenever a new project forecast report is being produced.

Table 11 shows the most common used parameters in forecast reports. Baseline is set in the beginning of the project, and other parameters are measured usually against it. Project manager gathers forecasts, estimates and other relevant information usually with help of the project team.

4.3.3 Project Manager

Project manager is a professional in the field of project management who has the responsibility of planning, executing, controlling, and closing any project assigned to him or her (Moustafaev 2010: 26). Some of the responsibilities of project manager include following and reporting schedule, cost quality and risk related matters. The example of the knowledge areas and corresponding project manager's responsibilities are described in Table 12 below.

Table 12. Project manager's responsibilities (Moustafaev 2010).

Knowledge Area	Project manager's responsibilities
Integration	Develop the project management plan and get it approved Ensure the project executes in accordance with its approved project management plan Ensure an overall change control process is followed
Scope	Ensure the project has a signed business requirements document Ensure the project constraints, assumptions, and dependencies are documented and agreed upon
Time	Ensure the project schedule is decomposed to a sufficient level of detail that allows accurate effort estimation Ensure the project is an accurate and defined activity sequence (network of dependencies)
Cost	Estimate project costs Create project budget Track budget (capital, operating expense) and report on status
Quality	Ensure documents are properly reviewed and approved Any testing activities are planned for and executed Get the customer acceptance
Human resources	Ensure roles and responsibilities for all project team members are clearly understood, followed, and communicated Ensure role assignments are filled with qualified staff
Communications	Ensure that a communications plan exists for the project Ensure project records (i.e., project plan, project status, open issues list, meeting agendas and recaps, etc.) are kept up to date and reported in a timely manner Ensure that project closure occurs when the project completes Ensure lessons learned sessions are conducted, documented, and analyzed for ongoing process improvement
Risk	Identify and quantify risks Develop risk mitigation strategies for each risk Communicate risks in a timely manner Complete periodic reviews of project risks and adjust approach strategies where necessary Identify, quantify, communicate, and resolve project risks
Procurement	Create outsourcing plans Request vendor responses and select a vendor Conduct contract administration and contract closure

As seen from Table 12, totally 9 different knowledge areas are included in project managers responsibilities. Each area includes at least two different responsibilities and they

are generally responsibilities are multi-dimensional. Roberts (2007) explains that one part of the project manager's responsibility is to confirm that project executes according to the project plan. This includes managing and motivating the project team to deliver on time, on budget and to the required standard of quality (Roberts, 2007: 178). The role of project manager requires extensive knowledge and expertise in order to be responsible for the tasks.

Project team meetings

Project team meetings are held more frequently than a steering group meetings. To ensure that all stakeholders will have accurate information when needed and in order stay up to date, project manager is recommended to arrange project team meetings weekly basis. A model on how to gather, process, report and act on progress data of a project is presented in Figure 13 below (Roberts, 2007:178).

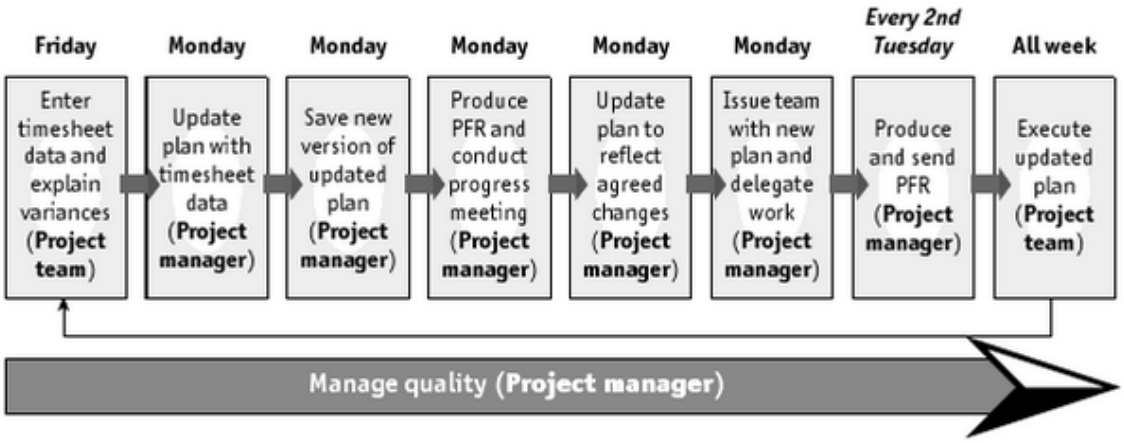


Figure 13. Project progress data managing (Roberts 2007: 178).

As seen from Figure 13 the Project Forecast Report (PFR) should be sent (to the steering group) every second Tuesday. Otherwise, the process is routine as every Friday the project team is obligated to enter timesheets, which is base for updating plan and project forecast reporting next Monday by project manager.

4.4 Reporting Practices

Management and monitoring of many ongoing projects requires practices that differentiate from a single project monitoring and management. Companies have often practices and reports that are evolved and shaped according to the company's needs. Thus, a report that is suitable for a particular company may not fit to their competitor due to difference in used technology that provides raw data for the reports. Therefore, companies typically explore the existing practices and adapt them to own needs. In a typical case, reporting practices typically include reporting templates, tools and technology varies between the companies. Roberts (2007: 171-172) recommends to utilize the project register report for the portfolio management report is which presented in Figure 14 below.

	Project	*First project*	*Second project*
Background	ID	1	2
	Last assessment date	Jan 12th 06	
	Assessor	Pete Robbins	Maggie Jones
	Project start date	Dec 10th 05	Sep 10th 05
PSG	Sponsor	Brad Somerville	Mark Knowles
	Customer representative(s)	Kevin Quinn	Helen Smith
	Developer representative(s)	Mark Johnson	Bupinda Patel
PM	Project manager	Will Stevens	Harry King
Time	Baseline end date	May 31st 06	Jun 10th 06
	Forecast end date	May 31st 06	Sep 30th 06
	Variance (weeks)	*0*	*-16*
	Escalation conditions (weeks)	*2*	*2*
	Within escalation conditions?	*Yes*	*No*
Cost	Baseline budget	$2,026,971	$101,923
	Forecast budget	$2,026,971	$115,000
	Variance	*$0*	*-$13,077*
	Escalation conditions %	*10*	*10*
	Within escalation conditions?	*Yes*	*No*
Benefits	Baseline benefits	$2,703,836	$200,101
	Forecast benefits	$2,703,836	$200,101
	Variance	*$0*	*$0*
	Escalation conditions %	*10*	*10*
	Within escalation conditions?	*Yes*	*Yes*
Business case	Baseline profit	$676,865	$98,178
	Forecast profit	$676,865	$85,101
	Variance	*$0*	*-$13,077*
	Escalation conditions %	*10*	*10*
	Within escalation conditions?	*Yes*	*No*

Figure 14. The project register report (Roberts 2007: 172).

Figure 14 is filled in with fictional data. The report includes information about each project in the portfolio and in this case, it contains only two projects shown in two columns. While comparing both projects presented in Figure 14, it can be seen that the first project is in order as it has no deviation in any area (Time, Cost, Benefits, and Business

case). The second project instead has deviations in both time and cost areas that will breach escalation conditions. More details of the same projects are given in Table 13 below.

Table 13. The project register report details (Robert 2007).

	Detail	Description
	Project	Name of the project
Back-ground	ID	The project's identifying code.
	Last assessment date	When the project was last subject to a health check or audit.
	Assessor	Who undertook the health check.
	Project start date	When the project was started formally.
Stakeholders	Sponsor	The person charged with delivering a commercially successful outcome.
	Customer representative(s)	The people charged with authorizing the definition and acceptance of the project's outcome from a user's perspective.
	Developer representative(s)	The people charged with authorizing the design and development of a robust and reliable solution that will meet the user's needs.
	Project manager	The person charged with planning, monitoring and controlling the delivery of milestones to time, cost and quality expectations.
Time	Baseline end date	When the project will end as stated in the project governance report.
	Forecast end date	When the project will end as identified in the current project plan, taking account of any actual or forecast variances.
	Variance (weeks)	The difference between the baseline end date and the forecast end date.
	Escalation conditions (weeks)	The amount against which variance is compared to determine whether it should be referred to the portfolio management team.
	Within escalation conditions?	a yes/no response.
Budget	Baseline budget	The project's intended budget as stated in the project governance report.
	Forecast budget	The project's budget as identified in the current project plan, taking account of any actual or forecast variances.
	Variance	The difference between the baseline budget and the forecast budget.
	Escalation conditions %	The amount against which variance is compared to determine whether it should be referred to the portfolio management team.
	Within escalation conditions?	a yes/no response.
Benefits	Baseline benefits	The project's intended benefits as stated in the business case.
	Forecast benefits	The project's benefits as currently envisaged, taking account of any actual or forecast variances.
	Variance	The difference between the baseline benefits and the forecast benefits.
	Escalation conditions %	The amount against which variance is compared to determine whether it should be referred to the portfolio management team.
	Within escalation conditions?	a yes/no response.
Business case	Baseline profit	The project's intended profit (the difference between project/operational costs and benefits over a defined period) as agreed in the business case.
	Forecast profit	The profit as identified in the current business case, taking account of any actual or forecast variances of costs and/or benefits.
	Variance	The difference between the baseline profit and the forecast profit.
	Escalation condi-	The amount against which variance is compared to determine wheth-

	tions %	er it should be referred to the portfolio management team.
	Within escalation conditions?	a yes/no response.

As seen from Table 13, the repeater factor in almost each of areas is comparison between the baseline and the forecast. Though, the project register reports gives an overview of the all projects in the portfolio, the portfolio management team might be interested to see an overview of the portfolio on a *corporate dashboard*. Roberts thinks that it is essential, however, that any report clearly indicates where and what corrective action must be taken. Thus, *the corporate dashboard* also indicates where escalation conditions have been breached so that further detail can be obtained from the project register. The corporate dashboard is presented in Figure 15 below.

A corporate dashboard

Project costs	Baseline budget	$2,128,894	No. of projects	2
	Forecast budget	$2,141,971	Breaching TIME escalation conditions	1
	Variance	–£13,077	Breaching COST escalation conditions	1
Project benefits	Baseline benefits	$2,903,937	Breaching BENEFIT escalation conditions	0
	Forecast benefits	$2,903,937	Breaching PROFIT escalation conditions	1
	Variance	$0		
Business case	Baseline profit	$775,043		
	Forecast profit	$761,966		
	Variance	–$13,077		

Figure 15. An overview of the portfolio (Roberts 2007: 175).

As seen from Figure 15, all the projects in the project register can be summarized further, giving the management overview of the portfolio. The corporate dashboard also indicates where escalation conditions have been breached, so that further detail can be obtained from the project register.

Thus, Roberts (2007) argues that project tools remain limited by *the data* they contain, *the people* who operate them and *the organization's capacity* to absorb them into its working practices. Because of the complex nature of their installation, organizations can be reluctant to implement software tools that may have to satisfy the needs of many stakeholders and can affect working practices. Therefore, expectations of the value they can deliver compared with the operational risk of their installation should be carefully considered (Robert 2007: 19). This may draw the conclusion that in many

companies improving the current tools might be a less risky way to gain efficiency than implementation of some new software.

Thought reporting practices consist of many areas and report templates, as shown above, they include the necessary data for particular stakeholders. In addition, the convenience of their use and utilization in the projects is also a matter of technology and tools used for reporting, as well as suitable reporting practices adjusted to the needs of a particular company. Data sources and tools that are used for reporting purposes may finally determine how rich and accurate is the data utilized in the projects and how effectively the data is available and definable for reporting.

4.5 Conceptual Framework of This Thesis

In this study, the challenges found in the current state analysis and related to project reporting related challenges was selected to be investigated in more detail. Main questions that were concluded from the remaining challenges in project reporting realm were. a) what to control when reporting, b) how and when to report, and c) by what means to carry out the reporting. These questions were the cornerstones of a more detailed investigation of existing knowledge and best practice available in the literature.

In this study, the findings related to reporting identified from best practice and existing business and academic literature were summarized according to the logic shown in Figure 16 below. For *project management* reporting is found to play a vital role to control, steer, and monitor the projects. Project reporting characteristics are divided into three main segments: 1) Project Controlling, 2) Project Monitoring, and 3) Project Reporting.

Figure 16 below summarizes the conceptual framework of this study.

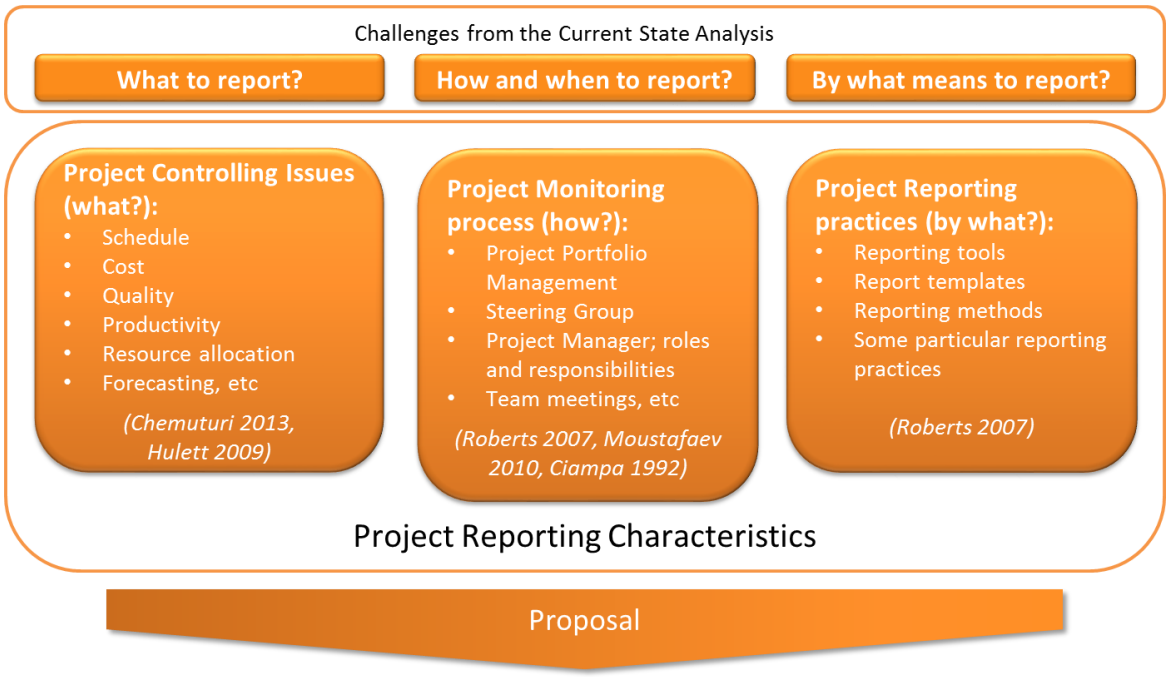


Figure 16. Conceptual framework of this study.

In this framework, *project controlling* includes control mechanisms that are commonly used and developed based on empirical knowledge in project work. Project controlling emphasis importance of different sub-areas in this realm, but also suggest to take into account relationship between the sub-areas and their influence on each other. *Project monitoring* takes into account needs from different stakeholders of a project. As reporting needs varies depending on a stakeholder group, existing knowledge explains what the interests of each stakeholder group are. *Project reporting* summarizes practices of project reporting, giving suggestions in what means reporting could be done with suitable reporting templates. It also explains project reporting and information gathering cycles.

The three areas which were explored in this section relate were steered by the more general questions which were identified as a result of the current state analysis (What to report, how and when to report, and by what means to report).

The next section applies the identified best practice to approach the problems identified in the case company.

5 Building Proposal for the Case Company

This section develops a proposal to improve the current reporting practices in the case by matching the areas for improvements identified from the current state analysis and the findings suggested by best practice. The proposal is developed by involving the relevant stakeholders in the proposal building process.

5.1 Challenges in the Current Reporting Practice

In this study, the challenges found in the current state analysis were analyzed and project reporting related challenges was selected to be investigated in more detail. Main questions that were concluded from the remaining challenges, from the project reporting point of view, were: a) *what to control when reporting*, b) *how and when to report*, and c) *by what means to report.* These questions were the cornerstones of a more detailed investigation of existing knowledge and best practice which was done in the previous section.

The current state analysis discovered the challenges related to the project reporting practices in the case company. The findings suggest that the project reporting challenges are mostly related to either lack of a reporting practices in offshore reporting, or missing data or a certain lacking reporting tool. These challenges presented earlier in Section 3 are briefly summarized in Table 14 below.

Table 14. Project reporting challenges in the case company.

	Problem Area	Description
1.	No common and formal report for reporting from offshore to onsite	There is a need for having progress report from offshore in a form that the current weekly report does not support. Practices and content of offshore reporting varies project by project.
2.	The project accounting tool for Portfolio management reporting is inadequate	Excel tool is non-uniform with Portfolio Management HC report data. It requires additional information and conformity in accordance with HC.
3.	Finance Forecast report is missing some practical financial information	Lacking of some financial information causes extra work. Adding some recognized information in tool might save worktime and increase accuracy of the data.

Table 14 shows that two of the problems are related to project reporting practices and one of them is related to the reporting tools. The project accounting tool for portfolio

management requires significant improvement whereas the finance forecast report could be improved with minor changes.

The current reporting practice of the case company requires regular reporting on agreed form. The case company has several lines on reporting and different reporting cycles depending on the reporting line. Some of the reporting lines and cycles are presented in Figure 17 below.

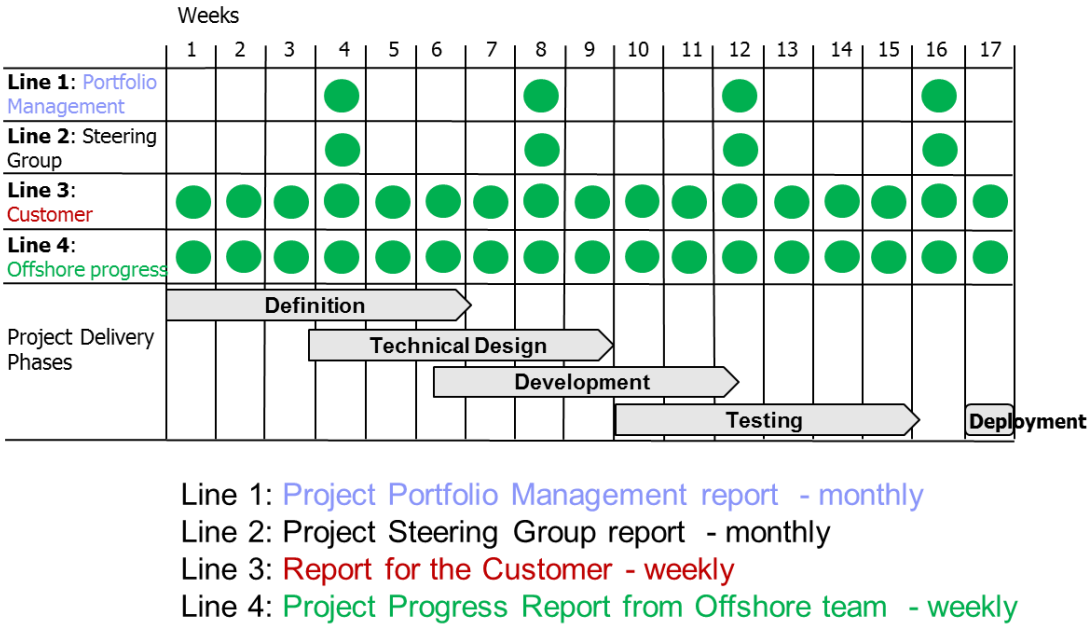


Figure 17. Reporting lines and cycles in the case company.

Figure 17 is an illustrative model of the current reporting practice, showing four reporting lines in the case company Project delivery process. The green circles reflect the reporting frequency, for example, in Line 1, the Portfolio management, receives their report every four week. Line 2, Steering group, also receives a report every four weeks, but their reporting cycle is often related to the progress in a project in general and various project phases. The customer (Line 3) receives their weekly report every week and the offshore team (Line 4) is expected to report their progress also on a weekly basis. Reporting responsibilities are divided so that the offshore project manager reports on the project progress to the onsite project manager. The onsite project manager is responsible for reporting to the customer, steering group and portfolio management group.

5.2 Reporting Improvements and Suggestions from Team Discussions

The current reporting challenges were discussed several times with interviewees and some other people around the service delivery business department of the case company (Data 2). Based on the discussions with the stakeholders in the case company, the reporting related discussions and suggestions can be summarized as follows.

A. Onsite and offshore use different templates for reporting

The current practice of offshore progress reporting from the offshore project manager to the onsite project manager varies project by project. Often a particular reporting practice is agreed between the project managers upon starting the project and thus, they are not uniform in this area. When discussing the suggestions for improvement in this area, the stakeholders who participated in Data collection 2 specified even further their vision of the challenges (so that to better argue for their suggested solutions). The interviewees stressed that the current practice suffers from these challenges such as: a) reported data is often not uniform with data required for the customer weekly report, b) as reporting in this area is not formal, the confidence in accuracy of information is suffering, and c) though, something has been agreed to be reported between project managers, very often asked data comes in different form than expected. One interviewee commented on this problem area as:

> *Even though we agreed in the beginning of the project what to report, all I got is a report, which shows roles and their allocation in the project and progress of project phases. It would be more convenient to have names instead of roles, their costs and overall information that makes match with customer weekly report, but in more detailed level.*
>
> (Person 7)

In addition to this, other interviewees commented in a workshop that they would like to have more information about comparison between baseline and forecast. Therefore, the interviewees suggested that the starting point for the improvement of this area could be *a uniform customer weekly report*, which could be used as a model. They argued that, if the data is possible to receive from offshore in the same format, though on a more detailed level, it is easy to fill in the customer weekly report and thus save time and reduce probability of an error in the data. Overall, the improvement in this area requires, according to the team, mapping of the current practices in all projects and based on the most effective practice and experiences, define the required information that is needed from offshore on a weekly basis and piloting of the new offshore weekly report.

Meanwhile, until this is not done, the team has agreed that the following items should be included in the weekly report from the onshore team. First, the completion level of each task assigned to the offshore team. This information should be expressed as a percentage. Second, the forecast of each parameters such as schedule, completion, costs and resource allocation. It is noteworthy that forecast should be always compared to the baseline and if any deviations occurs, they must be raised. Third, any indicated problems must be reported clearly and promptly. Overall the information provided by the suggested weekly report should make match with the customer status report.

Based on these suggestions, the new template was developed that incorporated the stakeholders' suggestions (as shown in Appendix 7).

B. Project Accounting Tool is Inadequate for HC Reporting

When discussing the suggestions for improvement in this area, the stakeholders who participated in Data collection 2 stressed that the current practice suffers from the following challenges: a) data fields in both the tool and HC report mismatch in some places, b) the tool does not provide all required data for HC report, c) the current data from the tool is ambiguous in places, and d) the tool does not provide any help texts. The practical problems of use of the tool were commented as follows:

> *Filling HC report is really time consuming task, it takes several hours to collect all required data from different sources and looks like the tool provides only one portion of the data for HC report. Though, some data can be found from the tool, it often requires some extra calculation and extra data added in the tool in order to finalize figures for HC report.*
>
> (Person 2)

Other person also commented on this challenge area as follows:

> *If the tool could provide clearly same data with same field names than we have in HC report, it would be very beneficial tool. That could save a lot of project managers' work and create confidence against the accuracy of data.*
>
> (Person 11)

Due to these facts, the stakeholders emphasized that the change to the tool will need to be relatively large and it will also require a detailed mapping of the current needs and requirements against the tool. Once the needs and requirements are clear, changes ought to be implemented and after that carefully piloted. The pilot of the tool might raise up new needs or require some related fine-tuning, so this should be taken into account before launching the tool for larger use.

Based on the Data 2 collection, the following features should be included in the project accounting tool. First, the information calculated and provided by the tool should match with the HC report. Additionally, the tool should include calculation for the fields in the HC report that are not calculated currently in the tool. Second, additional information about the fields in the tool and some help information should be included in the tool. Overall, the information provided by the tool ought to be aligned according to the HC report in order to save time and reduce possibility of an error in financial data.

Based on these suggestions, the improved proposal was developed that incorporated the stakeholders' suggestions.

C. Finance Forecast Report Lacks Information

When discussing the suggestions for improvement in reporting area, the Finance forecast report has identified as the first and easiest improvement target by the interviewed stakeholders. The current challenges with the report are related to two missing types of information: the resource allocation (in percentage) and revenue information. Though the suggested improvements are not relatively big, they were considered to save time and increase efficiency as one interviewee put it:

> *The finance forecast report is in good shape now, though it requires some manual work as feeding project actual hours weekly, it would help to save time it the report would allow resource allocation filling with percentages, instead of hours. It also would be beneficial to have revenue information from the report as it is missing currently.*
>
> (Person 2)

The suggested improvements to Finance forecast report are expected to require but a light effort to be implemented. However, it would be beneficial to collect any other needs from project managers and plan their implementation simultaneously with the suggested improvements. If all suggested improvements are still relatively small, they could be implemented and taken into use without piloting.

The improvement proposal for the Finance forecast report includes the following: a) the current allocation information presented in hours should be replaced with percentages, ad b) revenue information should be present as it is lacking currently.

If summarized, the current reporting challenges discussed with the stakeholders in the Project delivery process in the case company (Data 2) pointed to the following suggestions, as summarized in Table 15 below.

Table 15. Suggestions for solving the current reporting challenges.

	Problem Area	Suggestion
1.	No common and formal report for reporting from offshore to onsite	To create new report for offshore, that serves onsite team as well as the customer. Preliminary required information includes: • completion-% • forecasts • clearly stated problems • compatible with customer status reporting (high and detailed levels)
2.	The project accounting tool for Portfolio management reporting is inadequate. The tool is missing some information and help texts	Additional information and help information in the tool in order to ease use of it and to confirm the reliability of the information. Information in the tool ought to be aligned according to the HC tool. This saves lot of time and reduce possibility of an error in financial data.
3.	Finance Forecast report is missing some practical financial information	To add at least the following information in the finance forecast report: • Allocations in percentages instead of hours • Revenue information

As seen from Table 15, the current challenges in the case company are visible in three areas: a) Onsite and offshore use different templates for reporting, b) The project accounting tool is inadequate for HC reporting, and c) Finance forecast report missing information. Improvements and suggestions for these challenges are discussed in more detail below.

Improvements and suggestions for these challenges were discussed with the team and formulated into the proposals for improvements. The first proposal relates to the New *Uniform Template for reporting on project progress for Onshore and Offshore teams*. This Template is proposed for a weekly reporting (created based on the stakeholders' suggestions and shown in Appendix 7). The second proposal relates to the Improved *Project Accounting Tool.* The proposal includes recommendations for improving the tool by new features such as calculating uniform data for HC report and providing help information for the user. The third proposal relates to the Improved *Finance Forecast Report.* This Report is recommended to include features such as replacing hour related resource allocation information by percentages and providing revenue information.

Summing up, the smallest effort was needed to implement corrections for the Finance forecast report (Proposal 3) as it requires only little additional information. Creating a new Template for offshore reporting (Proposal 1) required more effort, and it was recommended to put this proposal into a limited use in the beginning in order to test and validate this reporting practice. The Project accounting tool for portfolio management report (Proposal 2) was estimated to save time in the future if the suggested corrections are made. This change needs the most effort compared to other suggestions to the current reporting practices. As the output of the project accounting tool is the financial data for the HC report, its accuracy has especially important. Therefore, the stakeholders also suggested to plan for the piloting and collecting experience and feedback from the pilot, which was put into the Action plans presented as part of the proposal below.

5.3 Action Plans for Implementing the Improvement Suggestions in Reporting Practices

Suggestions for improvements to the current reporting practices were formulated into the following three outcomes which should positively impact the current reporting practices. The description below identifies the outcomes, first, separately and then point to the changes on the reporting map.

A. Implementing the Uniform Template for reporting on project progress for Onshore and Offshore teams (New)

Based on best practice from literature, the first draft and proposal for the new offshore reporting template is presented in Appendix 7. The report template includes core information that is usually needed for progress reporting in the case company. However, the report template can be modified further on and there is room for improvements reserved in the action plan, presented in Table 16 below.

Table 16. Action plan for implementing the uniform report template for offshore reporting.

Step	Action
1.	Evaluation of the current state of reporting in the Project delivery, a) Successful practices from the current project(s)? (in which new reporting is applied) b) More needs for reporting? (content, cycle..) c) Possible reporting tool changes within this project? (as for accuracy of the information, etc.)

2.	Correcting the Report template and practices based on the discovered needs, requirements and best practice from the project(s).
3.	Piloting the updated Report template with the new selected project managers and projects (for 3 months)
4.	Gathering feedback from the pilot, fine-tuning the Report template and practices (if necessary)
5.	Launch into larger use.

Table 16 above includes five steps action plan for improving offshore progress reporting. Recommended draft template (Appendix 7) acts as a starting point for planning needs in the step 2 as it helps to concretize needed changes.

B. Implementing the Project Accounting Tool (Improved)

The project accounting tool requires changes that eases use of it and also provides more information for the HC report. The plan on how to proceed with mapping the needs and implement them are presented in Table 17 below.

Table 17. Action plan for improving the Project accounting tool.

Step	Action
1.	Mapping of the current state of reporting in the Project delivery, a) Collecting experiences from the use of this tool from the Project Managers b) What data is needed to add and to calculate in the tool? c) What help information is needed? d) What needs are not addressed?
2.	Updating the tool based on these feedback and needs
3.	Piloting the tool with a selected project managers and projects for 3 months
4.	Gathering the feedback from the pilot, fine-tuning of the tool (if necessary)
5.	Launch into larger use.

As seen from Table 17 the steps follow same pattern as the previous action plan (Table 16). Goal of the project accounting tool improvement is to increase available data from the tool (Appendix 1) to match with the HC report (Appendix 2).

C. Implementing the Finance Forecast Report (Improved)

The proposed improvements for Finance forecast tool are relatively small to implement. Action plan for improvements of the Finance forecast tool are shown in Table 18 below.

Table 18. Action plan for improving Finance forecast report.

Step	Action

1.	Mapping of the current state of reporting in the Project delivery: 1. Collecting experiences from the use of the tool from the Project Managers 2. What financial data is needed to add and to calculate in the tool? 3. What other information is needed? 4. What needs are not addressed?
2.	Updating of the tool based on these feedback and needs
3.	If the changes are minor: 1. Fine-tune 2. Launch into larger use.
4.	If the changes are major: a) Pilot the tool with selected PM's and projects for 3 months b) Gather the feedback from the pilot; investigate and revise carefully; fine-tune the tool. c) Launch into larger use.

Table 18 shows that even though two improvement needs are already known, the current state of the Finance forecast report is need to be mapped. If any additional needs will be found from that phase, they will be considered and in case the all improvements form only minor changes, they will be implemented and launch into larger use. If the proposed changes are major, the piloting following by feedback and fine-tuning will be arranged before the launch into larger use.

Suggested corrections will have the following impact on the current reporting practices. Figure 18 below identifies the proposed suggestions on the reporting map.

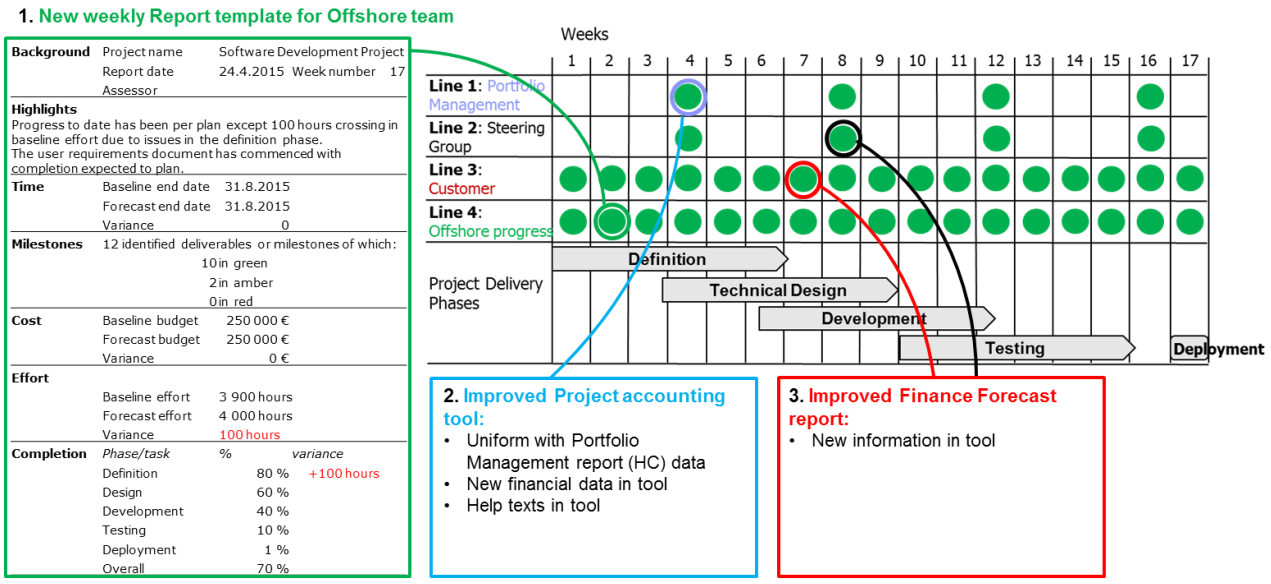


Figure 18. Mapping of suggested solutions.

As seen from Figure 18, the suggested improvements on reporting practices will have impact on each of the reporting lines. However, improvements might have also an indirect impact on the reporting lines other than marked in Figure 18. For example, the uniform weekly report will enable more reliable reporting forwarded to the customer and steering group. Overall, the suggested improvements are expected to increase efficiency of reporting, save time of the project managers, and increase confidence in the accuracy of reported data.

6 Validation of the Proposal

This section discusses the results of the validation of the preliminary proposal with the management of the case company. It is followed by presentation of the final proposal.

6.1 Validation with the Management

Validation of the preliminary proposal was held with the management of the project delivery department of the case company. The validation was arranged in a form of a discussion session. The session started with overview of the identified challenges (Data 1) and data collection methods for Data 1, including description of the roles of interviewees, results from CSA and focus area of this study. Focus area related problems were presented and discussed in detail, and also the identified best practice from the literature were discussed. Finally, the preliminary proposal was presented to the management.

The management validated the preliminary proposal as suitable for the case company needs in the project delivery process and approved of it. During the session, the management was asked to confirm the Action plans on how to proceed with the proposed suggestions. The management confirmed that the Proposals including the Action plans are considered as important and useful and will be implemented. It was also suggested that a more detailed implementation plan to test in a suitable project will need to be carried out within the continuous development stream in the Steering group.

6.2 The Final Proposal

Since the management had no any significant changes to the initial proposal, the final proposal repeats the preliminary proposal. The final proposal is presented in Table 19 below.

Table 19. The final proposal, shown as three outcomes.

Main questions from CSA to investigate best practice from existing knowledge	Outcome 1: Report template	Outcome 2: Improved project accounting tool	Outcome 3: Improved finance forecast report
What to report (issues)?	No common and formal report for reporting from offshore	The project accounting tool for Portfolio management report-	Finance Forecast report is missing some practical finan-

	to onsite	ing is inadequate. The tool is missing some information and help texts	cial information
	To create new report for offshore, that serves onsite team as well as the customer. Preliminary required information includes: • completion-% • forecasts • clearly stated problems • compatible with the customer status reporting (high and detailed levels)	Additional information and help information in the tool in order to ease use of it and to confirm the reliability of the information. Information in the tool ought to be aligned according to the HC tool. This saves lot of time and reduce possibility of an error in financial data.	To add at least the following information in the finance forecast report: • Allocations in percentages instead of hours • Revenue information
How to report (process)?	Weekly, from offshore to onsite	Monthly, to the portfolio management	Weekly to the customer, Monthly to the steering group
By what means to report (tools)?	Report template	Excel	Report template

As seen from Table 19, the main questions presented in the CSA were utilized to find suggestions from best practice (also visible in the conceptual framework) and answered in the final proposal. The thesis improved three key project reporting practices as part of a wider reporting process in the case company Project Delivery process.

The final proposal tackles the problems by suggesting a proposal for the key problems described in Sections 5.3 and 6.2. On a high level, for further refinement of the proposals it is suggested to do: a) a detailed mapping or evaluation of the proposals, b) based on feedback from the previous phase, to do the necessary corrections, c) piloting and gathering feedback from the pilot, d) fine-tuning based on feedback from the pilot, and e) launching into larger use. As the required work effort to solve the problems varies between the suggested proposals and per problem, the following Figure 19 describes how the action plans should be carried out.

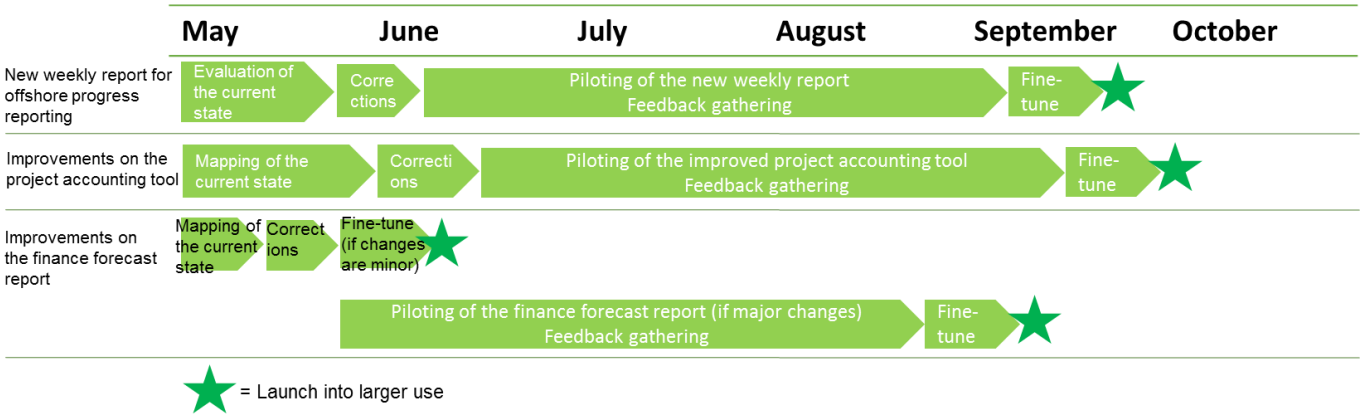


Figure 19. The schedule for implementing the suggested proposals.

Figure 19 shows what actions and when could be taken in order to improve the reporting practices in the case company as described in the action plans in Section 5.3. As seen from Figure 19, each of the improvement proposal has its own launch schedule. This is due to difference in work effort, required resources and stakeholders, which vary between the proposals. However, all launches are planned to be executed in fall, except for the improvement to the Finance forecast report, since its changes are minor, which will be launched in June.

6.1 Managerial Implications

If the case company decides to improve its reporting practices, the management is recommended to take the following actions.

First, to make decision in the Steering group of continuous development stream to nominate a responsible person for each improvement area. Once the responsible person of each area has been nominated, an Action plan, as described in Figure 19 in Section 5.3, should be developed.

Second, the Steering group of continuous development stream should follow the progress and take the necessary decisions during the process as for: a) allocating resources, b) deciding on the extension of suggested changes, taking into account the costs involved, c) starting the pilot, d) deciding on the launch of improvements into larger use, taking into account the necessary announcements, updates to instructions, process diagrams and other internal documentation and any other area that might be affected due to improvements.

Third, there is a recommendation to continue collecting improvement ideas in this area which should result in better project outcomes for the case company.

7 Discussion and Conclusions

This section discuss the main findings of this study, practical implications for the proposal and the next steps of the reporting practice improvement in the case company for the future. It also evaluates the study by comparing outcome and objective of this thesis. Finally, reliability and validity of the study are discussed.

7.1 Summary

This study investigated challenges in the current processes in the project delivery business of the case company, with the focus on improving its reporting practices. Outcome of the study was the improvement proposal for three main challenges identified in the current reporting practices.

The current state analysis investigated the project delivery business challenges in both processes (the Work order and Project delivery processes). As a result of this investigation, totally 53 findings were identified in both processes, categorized and prioritized with the interviewed stakeholders. The identified range of the challenges was relatively large, comprising several challenge areas in both processes. Therefore, the focus area of this study was chosen to be the improvement of the current reporting practices.

The current state analysis summarized main challenges in reporting area and presented three main questions that become the basis for searching solutions to the problems from literature and best practice. Based on the current state analysis, the three main questions to explore topic in existing knowledge were formulated as: a) what to report, b) when and how to report, and c) by what means to report. As a result of literature investigation, the conceptual framework of this study was formed.

End results from the both, the current state analysis and conceptual framework, were used for building the preliminary proposal. The preliminary proposal evolved during the building phase based on the inputs and comments from the stakeholders in the case company. Development of the preliminary proposal called for several feedback rounds, workshops and one-to-one discussions with the personnel.

The proposal included the following suggestions how to improve the current reporting practices. First, the new Report template was proposed for offshore reporting. Second,

the improvements were proposed to the Project accounting tool, which includes the additional data and help information added in the tool. Third, the improvements to the Financial forecast report were proposed, which included two additional information added in the tool such as resource allocation (in percentages) and revenue information. These proposal addressed the challenges revealed from the current state analysis in reporting practice in the case company. The most significant problems in reporting area were identified as: a) offshore and onsite have no common and formal report Template, b) the Project accounting tool for portfolio management reporting is inadequate, and c) the Finance forecast report is lacking information.

Once the preliminary proposal took its final form, it was validated with the management of the project delivery business department of the case company. Validation resulted with only minor suggestions to the preliminary proposal, making it the final proposal. The final proposal and its implementation were approved by the management and also other findings from the current state analysis stage were agreed to be followed case-by-case with the Steering group of continuous development stream in the case company.

7.2 Practical Implications and the Next Steps

The final proposal of this thesis is expected to improve the current reporting practices in the case company. The reporting between onsite and offshore should be consists, uniform with other reporting lines and formal. Improvements of reporting tools are expected to gain effectiveness in form of saved time, accuracy of data and uniformity. Actual benefits from the outcome of this study will be revealed in more detail with time. Therefore, one viewpoint on efficiency is to consider possibilities to measuring efficiency of proposed improvements.

As this study investigated only one part of the reporting practices in the case company, it leaves room for larger investigation in reporting practices area. As this study already revealed some improvement targets, that are expected to bring in efficiency and uniformity in reporting, mapping and investigating the whole reporting practices in the case company could benefit from experience and best practice suggested in this study. Such an investigation should take into account the whole reporting practices bottom-up. Things to consider are: a) data sources; technology used for storing, handling and re-

fining data, b) all used tools for analyzing and producing data for a report, c) all used report templates and d) target stakeholders of the reports and their needs. Drawn map of the whole reporting in the case company, which includes all previously mentioned topics, gives overview of the current state of the whole reporting practices in the case company. Such a map alone could already reveal, for example, overlapping of the data sources or inefficiency of sharing information between the different stakeholders, though access to root problems requires deeper analyzing and investigation of selected challenge areas.

7.3 Evaluation of the Thesis

This section evaluates the outcome against the objective of the study. It also discusses reliability and validity of this study.

7.3.1 Outcome vs Objective

The outcome of this study is the final proposal, which includes three improvement suggestions and action plans for each improvement on how to proceed in order to implement them. Improvements are related either to the existing report, weekly report template or the existing reporting tool.

The main objective of this study was to improve the project reporting practices in Project Delivery business. The improvement proposal had to address the suggestions for improving the current reporting practices in the case company.

One aspect of the objective was to define three main questions that were asked in the current state analysis to approach the search for solutions from best practice. Those questions were: a) what to report, b) how and when to report, and c) by what means to report. These questions were concluded from the identified challenges in the reporting area and were used to conduct the literature search. Existing knowledge and best practice provided answers to the questions and literature combined with the current state analysis helped to produce the final proposal. To address the first question, a new weekly report (Appendix 7) was prolapsed to meet the preliminary need for reporting between offshore and onsite. However, as stated in the final proposal, the content and other needs for weekly report template will be further mapped in more detail according

to the action plan. Consequence of the second question was the improvement of the existing report in order to increase its efficiency and feasibility. As a result of suggested improvements, it is expected to provide more financial information and thus increase the level on what to report to different stakeholders. Regarding the third question, suggested improvements to the project calculating tool creates conditions for efficient reporting, as improvements are expected to save time and increase accuracy of data. Hence, the improvements on the tool were aimed to match with the HC report data and thus emphasize the reporting tool used for reporting.

Summing up, the outcome of this study provides three different improvements to the current reporting practices in the case company. As the objective of the study was to improve the project reporting practices in the case company, it can be considered that the objective has been achieved.

7.3.2 Reliability and Validity

This study is based on qualitative research methods, following action research as it research approach. Part of the action research is reliability and validity plan, which is described in Section 2.4 in this study.

As for *validity* the outcome of this study met the objective as was promised in the beginning of the study. The explanation in the thesis took into account correctness and credibility of a study by descriptions, conclusions, explanations and interpretations. The study made an effort to avoid the researcher bias by choosing the respondent group of interviewees extensively, interpreting the data results with interviewed people, discussing the results and the proposal with many stakeholders in the case company and finally considering the rival proposals for the improvement solutions.

In order to improve *reliability*, the data collection, analysis and conclusions from the data were described in detail. Part of the data collection were the interviews, which were recorded and drawn into the field notes. Though the number of interviewees were limited and thus they mostly took into account needs from onsite, in some cases it would have been beneficial to interview more people from offshore. Findings from the interviews, and thus recorded and drawn down into field notes, were recorded in an excel spreadsheet. Moreover, all the findings from the excel sheet were presented to

the interviewees and prioritized and analyzed with them. Additionally, the preliminary proposal was discussed several times with different people from the case company and thus gained validity. One other way to increase validity was to quote directly few interviewed people to detail the challenges reported in this study.

Reliability of this study was increased by using at least three different data sources that were internal documents, interviews and discussions and observations. Internal documents exposed the current reporting practices including report templates and used tools. Interviews and other discussions gained the knowledge learned from internal documents and existing reporting practices in the case company. Common meetings with interviewed people helped to mutually understand the reporting related challenges. To enabling verisimilitude, the outcomes of the study were discussed widely with colleagues in order to challenge the solution. The preliminary proposal of this study was validated with the interviewees and finally with the management of the project delivery business organization of the case company. Part of the validation was to question proposed proposal and try to find solution for the challenges from the rival solutions such as existing practices. Validity of the outcome of the study was hereby discussed extensively in the case company.

7.4 Final Word

IT field is generally known as rapid changes in technology and business. The changes force IT companies to reconsider and challenge the current business processes and practices in order to response changes in the business environment. As a result of this change, some IT companies might have renewed needs for example toward reporting practices. Initiative for such a change could be for example acquisition, outsourcing, new customer relationship, partnership and so on. This said, the current reporting practices might be under pressure to change over time in some IT companies. Every company needs reporting, therefore improvements in reporting may help companies in monitoring their progress better, detecting performance earlier and predicting needs for change earlier.

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APPENDIX 1: The Summary Project Forecast Report

A summary project forecast report

Project Name: Company Annual Seminar
Project Steering Group:
Sponsor: Howard Smith
Customer rep.: Annie Ownes
Developer rep.: Rafiq Shamsal
Project Manager: Danny Frost
Report Date: Monday, February 12, 2007

Highlights

Progress to date has been per plan. The Project Outline, Business Case and Project Governance Report have been completed.

The User Requirements Document has commenced with completion expected to plan

Some budget has been committed to secure the venue and some speakers, and to obtain vital resources for the programme.

Lowlights

The dates for the Draft Programme and Speaker Invitations have been delayed owing to a diary conflict.

However, this will not cause a knock-on delay elsewhere. There will be a delay in obtaining the venue logo as this is being redesigned.

Timescale Summary

There are 22 identified deliverables or milestones.
There are 19 **GREEN** milestones.
There are 3 **AMBER** milestones. The PM should remain in charge, but the PSG should know of these variances.
There are 0 **RED** milestones which should be managed by the PSG.
The intended end date is 20/4/07
The forecast end date is 20/4/07
The variance is 0 days and is **GREEN**

Benefit Summary

The intended benefits were $100,000
The forecast benefits are $100,000
The variance is 0% **$0** and is **GREEN**

Budget Summary

The intended budget was $72,250
The forecast budget is $73,000
The variance is −1% **−$750** and is **AMBER**

Business Case Summary

The intended gross margin was $27,750
The forecast gross margin is $27,000
The variance is −3% **−$750** and is **AMBER**

Quality Summary

There are **0** **GREEN** quality measures.
There are **0** **AMBER** quality measures which should be managed by the PM.
There are **5** **RED** quality measures which should be managed by the PSG.

Risk Summary

There are **4** identified risks.
There are **2** **GREEN** risks which should be managed by the team.
There are **2** **AMBER** risks which should be managed by the PM.
There are **0** **RED** risks which should be managed by the PSG.

APPENDIX 2: The Project Time Forecast Report

Project forecast report: time forecast

Project name:	Company annual seminar
Project manager:	Danny Frost

Off track, requires project steering group's intervention
Off track, but within project manager's control
On track to deliver on intended delivery date

ESCALATION	From	To
RED=	6	100
AMBER=	1	5
GREEN=	0	0

ID	Milestone	Team member responsible	TIME					
			Baseline		Forecast/actual		Variance/ R/A/G	Reason
			Start	End	Start	End		
1	Completed and internally approved project outline and business case	PR	03/02/07	09/02/07	03/02/07	09/02/07	0	
2	Completed project governance report	JK	10/02/07	10/02/07	10/02/07	10/02/07	0	
3	Completed user requirements document	JK	11/02/07	14/02/07	11/02/07	14/02/07	0	
4	Draft agenda and topics	JK, PR	15/02/07	15/02/07	15/02/07	15/02/07	0	
5	Identified venue	SP	15/02/07	15/02/07	15/02/07	15/02/07	0	
6	Reserved venue	LA	11/02/07	19/02/07	11/02/07	19/02/07	0	
7	Marketing plan	LA	15/02/07	19/02/07	15/02/07	19/02/07	0	
8	Confirmed date	DK	19/02/07	19/02/07	19/02/07	19/02/07	0	
9	Agreed speakers	LA	10/02/07	19/02/07	10/02/07	19/02/07	0	
10	Draft programme	PR	10/02/07	01/03/07	10/02/07	03/03/07	2	Diary conflict
11	Approved speaker invitations	JK	01/03/07	05/03/07	01/03/07	08/03/07	3	Diary conflict
12	Despatched speaker invitations	LA	19/02/07	21/02/07	19/02/07	21/02/07	0	
13	Completed speaker confirmations	DK	21/02/07	10/03/07	21/02/07	10/03/07	0	
14	Received venue logos	SP	15/02/07	15/03/07	15/02/07	19/03/07	4	Logos being redeisgned
15	Booked and paid venue	PR	15/02/07	20/03/07	15/02/07	20/03/07	0	
16	Completed delegate packs	LA	15/02/07	25/03/07	15/02/07	25/03/07	0	
17	Approved marketing materials	LA	15/02/07	25/03/07	15/02/07	25/03/07	0	
18	Printed and despatched marketing materials and invitations	DK	25/03/07	04/04/07	25/03/07	04/04/07	0	
19	Received speaker speeches	PR	10/03/07	04/04/07	10/03/07	04/04/07	0	
20	Produced and despatched running plans	SP	04/04/07	15/04/07	04/04/07	15/04/07	0	
21	Final approval meeting	LA	16/04/07	16/04/07	16/04/07	16/04/07	0	
22	Event	ALL	20/04/07	20/04/07	20/04/07	20/04/07	0	

APPENDIX 3: The Cost Forecast by Type Report

Project forecast report: cost forecast by type

Project name:	Company annual seminar
Project manager:	Danny Frost
Summary variance	-$750.00

ESCALATION

Off track, requires project steering group's intervention — RED= -3,000 — -1,000,000
Off track, but within project manager's control — AMBER= -1 — -3,000
On track to deliver to intended budget — GREEN= 0 — 0

ID	Resource	COST											
		Baseline			Actual to date			Estimate to complete			Forecast	Variance/ R/A/G	Reason
		Items	Unit	TOTAL	Items	Unit	TOTAL	Items	Unit	TOTAL			
1	Marketing team (10 person days @ $300 per day)	10.00	$300	$3,000	10.00	$300	$3,000	0.00	$0	$0	$3,000	$0	
2	Technology team (5 person days @ $350 per day)	5.00	$350	$1,750	4.00	$350	$1,400	2.00	$350	$700	$2,100	-$350	One extra day needed to source kit
3	Marketing materials	1.00	$5,000	$5,000	1.00	$5,000	$5,000	1.00	$0	$0	$5,000	$0	
4	Copywriting fees	1.00	$3,000	$3,000	1.00	$3,000	$3,000	1.00	$0	$0	$3,000	$0	
5	Editing in house	1.00	$3,000	$3,000	1.00	$3,000	$3,000	1.00	$0	$0	$3,000	$0	
6	Fulfilment	1.00	$1,500	$1,500	1.00	$1,500	$1,500	1.00	$0	$0	$1,500	$0	
7	Transportation	1.00	$500	$500	1.00	$800	$800	1.00	$0	$0	$800	-$300	Estimates failed to include supplier price increase
8	Stationery	1.00	$1,200	$1,200	1.00	$1,300	$1,300	1.00	$0	$0	$1,300	-$100	Estimates wrongly based on last year's figures
9	Signage	1.00	$300	$300	1.00	$300	$300	1.00	$0	$0	$300	$0	
10	Airfares	5.00	$600	$3,000	0.00	$600	$0	5.00	$600	$3,000	$3,000	$0	
11	Venue	1.00	$20,000	$20,000	0.00	$20,000	$0	1.00	$20,000	$20,000	$20,000	$0	
12	Hotel accommodation	60.00	$400	$24,000	0.00	$400	$0	60.00	$400	$24,000	$24,000	$0	
13	Audio visual	1.00	$3,000	$3,000	0.00	$3,000	$0	1.00	$3,000	$3,000	$3,000	$0	
14	Food and drink	60.00	$50	$3,000	0.00	$50	$0	60.00	$50	$3,000	$3,000	$0	
TOTAL				$72,250			$19,300			$53,700	$73,000	-$750	

APPENDIX 4: The Cost Forecast by Product Report

Project forecast report: cost forecast by product

Project name:	Company annual seminar
Project manager:	Danny Frost
Summary variance	-$750.00

Off track, requires project steering group's intervention
Off track, but within project manager's control
On track to deliver on intended delivery date

ESCALATION	From	To
RED=	-3,000	-1,000,000
AMBER=	-1	-3,000
GREEN=	0	0

ID	Milestone	Team member responsible	TIME					
			Baseline	ATD	ETC	FAC	Variance/ R/A/G	Reason
1	Completed and internally approved project outline and business case	PR	$1,200	$1,200	$0	$1,200	$0	
2	Completed project governance report	JK	$300	$300	$0	$300	$0	
3	Completed user requirements document	JK	$700	$700	$0	$700	$0	
4	Draft agenda and topics	JK, PR	$700	$0	$700	$700	$0	
5	Identified venue	SP	$760	$0	$760	$760	$0	
6	Reserved venue	LA	$10,000	$10,000	$350	$10,350	-$350	One extra day needed to source kit
7	Marketing plan	LA	$1,200	$0	$1,200	$1,200	$0	
8	Confirmed date	DK	$300	$0	$300	$300	$0	
9	Agreed speakers	LA	$3,790	$3,790	$0	$3,790	$0	
10	Draft programme	PR	$3,500	$3,310	$190	$3,500	$0	
11	Approved speaker invitations	JK	$700	$0	$700	$700	$0	
12	Despatched speaker invitations	LA	$900	$0	$900	$900	$0	
13	Completed speaker confirmations	DK	$7,000	$0	$7,000	$7,000	$0	
14	Received venue logos	SP	$400	$0	$400	$400	$0	
15	Booked and paid venue	PR	$17,800	$0	$17,800	$17,800	$0	
16	Completed delegate packs	LA	$12,300	$0	$12,300	$12,300	$0	
17	Approved marketing materials	LA	$700	$0	$700	$700	$0	
18	Printed and despatched marketing materials and invitations	DK	$8,900	$0	$9,300	$9,300	-$400	Increase in prices from suppliers
19	Received speaker speeches	PR	$100	$0	$100	$100	$0	
20	Produced and despatched running plans	SP	$300	$0	$300	$300	$0	
21	Final approval meeting	LA	$700	$0	$700	$700	$0	
22	Event	ALL	$0	$0	$0	$0	$0	
	TOTAL		$72,250	$19,300	$53,700	$73,000	-$750	

APPENDIX 5: The Project Quality Forecast Report

9.9

Project forecast report: project quality forecast

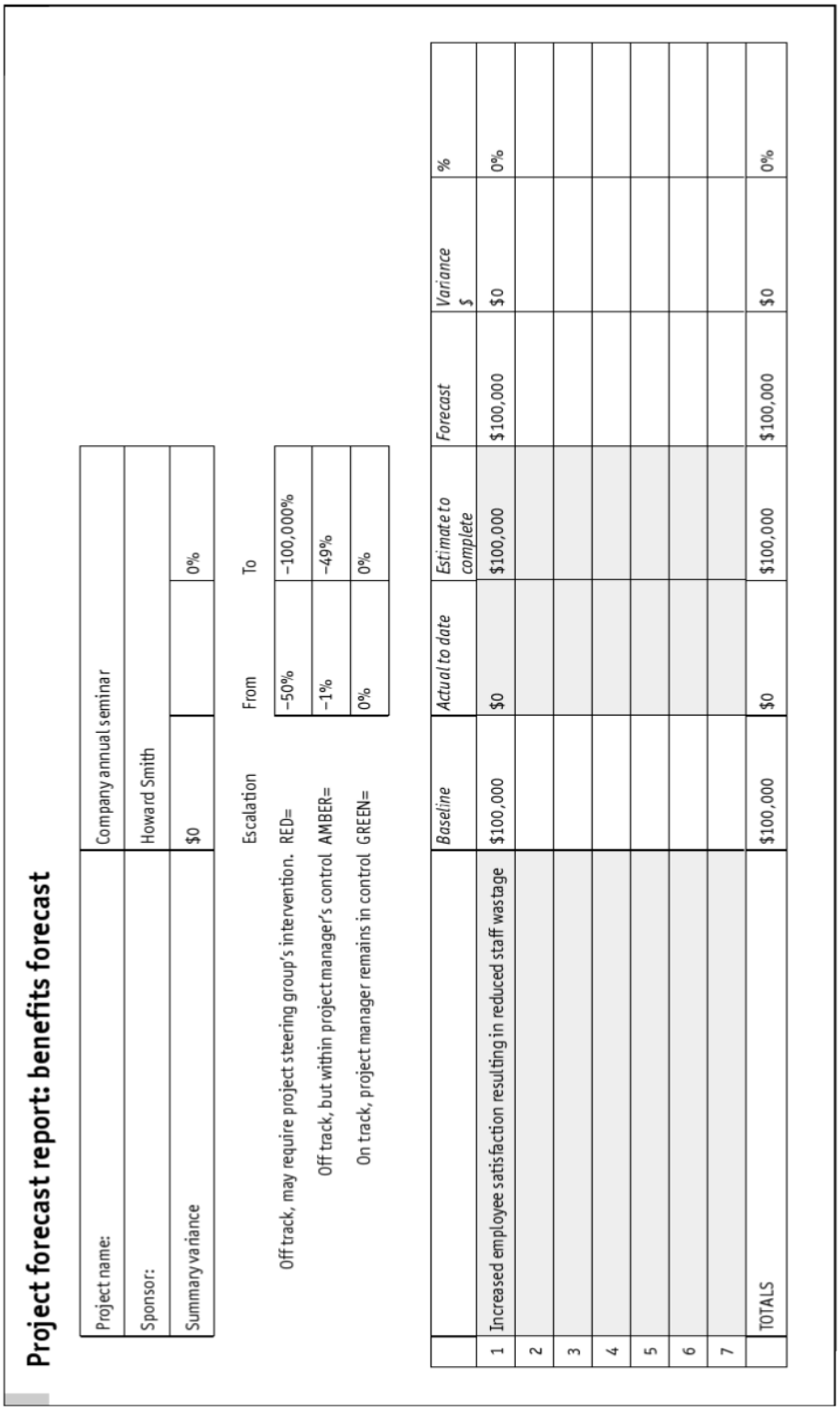
Project name:	Company annual seminar
Project manager:	Danny Frost

ESCALATION

On track to deliver as intended	GREEN=	100%
Off track, but within project manager's control	AMBER=	75%
Off track, may require project steering group's intervention.	RED=	0%

		METRICS			
ID	*Quality measure*	*Baseline*	*Actual to date*	*Success/ R/A/G*	*Reason for variance*
1	Speaker acceptances	7	2	29%	Ahead of schedule - none expected at this stage
2	Employee registrations	300	0	0%	On plan - invitations not yet sent
3	Number of external press attending	3	0	0%	Event not yet completed
4	No shows	30	0	0%	Event not yet completed
5	Evaluation forms completed	200	0	0%	Event not yet completed

APPENDIX 6: The Benefits Forecast Report



Project forecast report: benefits forecast

Project name:	Company annual seminar
Sponsor:	Howard Smith
Summary variance	$0	0%

Escalation	From	To
Off track, may require project steering group's intervention. RED=	−50%	−100,000%
Off track, but within project manager's control AMBER=	−1%	−49%
On track, project manager remains in control GREEN=	0%	0%

		Baseline	*Actual to date*	*Estimate to complete*	*Forecast*	*Variance $*	*%*
1	Increased employee satisfaction resulting in reduced staff wastage	$100,000	$0	$100,000	$100,000	$0	0%
2							
3							
4							
5							
6							
7							
	TOTALS	$100,000	$0	$100,000	$100,000	$0	0%

APPENDIX 7: New Weekly Report Template

Background	Project name	Software Development Project		
	Report date	24.4.2015	Week number	17
	Assessor			
Highlights				
Progress to date has been per plan except 100 hours crossing in baseline effort due to issues in the definition phase. The user requirements document has commenced with completion expected to plan.				
Time	Baseline end date	31.8.2015		
	Forecast end date	31.8.2015		
	Variance	0		
Milestones	12 identified deliverables or milestones of which:			
	10	in green		
	2	in amber		
	0	in red		
Cost	Baseline budget	250 000 €		
	Forecast budget	250 000 €		
	Variance	0 €		
Effort				
	Baseline effort	3 900 hours		
	Forecast effort	4 000 hours		
	Variance	100 hours		
Completion	*Phase/task*	*%*	*variance*	
	Definition	80 %	+100 hours	
	Design	60 %		
	Development	40 %		
	Testing	10 %		
	Deployment	1 %		
	Overall	70 %		

APPENDIX 8: The Current Project Accounting Tool

Name of the project	SW Development	**Summary**	
Project Manager	Mr. Manager		

	(Date) Initial Project estimate	(Date) Actual to Date	Remaining	(Date) Updated Project Estimate	Change
Revenue	500 000,00	300 000,00	200 000,00	520 000,00	20 000,00
Own Direct Costs	300 000,00	265 000,00	35 000,00	300 000,00	0,00
Contingency				0,00	0,00
Total Own Direct	300 000,00	265 000,00	35 000,00	300 000,00	0,00
ABC costs	25 000,00	20 250,50	3 000,00	23 250,50	-1 749,50
Subco Costs (3rd party)	65 000,00	49 500,00	5 400,00	54 900,00	-10 100,00
Total 3rd party	90 000,00	81 000,00	6 500,00	78 150,50	-11 849,50
Total Direct Costs	390 000,00	346 000,00	41 500,00	378 150,50	-11 849,50
Margin	110 000,00	-46 000,00	158 500,00	141 849,50	31 849,50
Margin%	22,00	-15,33	79,25	27,28	-2 172,72

	November	December	January	February	March	April	May	June	July	August
Revenue										
Own Direct Costs										
Contingency										
Total Own Direct										
CGI costs										
Subco Costs (3rd party)										
Total 3rd party										
Total Direct Costs										
Margin										
Margin%										

APPENDIX 9: The Estimates and Financial Tabs of the HC Report

Estimates Tab:

Financial Tab: